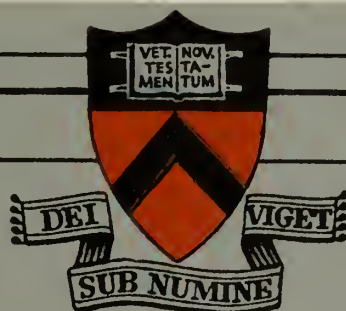


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A STUDY OF THE DOVER, DELAWARE -
DOVLER AIR FORCE BASE COMPLEX

by

Lt. J. E. Whelan, CEC, USN
//



PRINCETON UNIVERSITY

Table 1
U. S. Forest Service School
San Diego, California



THE IMPACT OF A MILITARY ESTABLISHMENT
ON AN ADJACENT COMMUNITY

A STUDY OF THE DOVER, DELAWARE -
DOVER AIR FORCE BASE COMPLEX

by

Lt. J. E. Whelan, CEC, USN
//

Submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Engineering from
Princeton University, 1962.

ACKNOWLEDGEMENTS

The author wishes to thank especially the following who have contributed greatly towards the success of this study:

Prof. Gerald W. Breese, Director, Bureau of Urban Research, Princeton University, for his interest, guidance, time and encouragement.

Prof. Norman J. Sollenberger, Chairman of the Department of Civil Engineering, Princeton University, for his interest and counsel.

The Bureau of Yards and Docks, Department of the Navy, for making this year of study possible.

Mr. Alton F. Hillis who acted as intermediary on many matters.

Mrs. Olive G. Hance for her typing services.

To single out those in Dover, both in the military and civilian organizations, who gave so freely of their time and assistance would be a major task. However, the author wishes to thank those in the following agencies and offices whose staffs were instrumental in providing the information contained herein:

Office of Information, Hq. 1607th Air Transport Wg(H) MATS, Dover Air Force Base.

Civilian Personnel Office, Base Housing Office and Base Engineer's Office, Dover Air Force Base.

State of Delaware Highway Department.

City Manager's Office, City of Dover.

Supervisor of Schools, Dover Special School District.

State Archives Commission, Dover, Delaware.

Diamond State Telephone Company.

Delaware Power and Light Company.

Greater Dover Chamber of Commerce.

State of Delaware, Employment Security Commission.

University of Delaware, Department of Agricultural
Economics.

University of Delaware, Delaware Extension Service,
School of Agriculture.

Above all, I wish to thank my wife who bore my
"trials" with patience and my children who at times bore my
impatience.

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Chapter I
INTRODUCTION

Dover, Delaware at mid-century was a city proud of its colonial heritage, interested mainly in preserving its quiet reserved way of life, its historical buildings and its tree lined-streets. In 1949, Dover was reported as being "a calm unhurried city of homes;" a city "not interested in industrial payrolls."¹ As the State capitol and the retail trade center of the surrounding agricultural counties, Dover had almost doubled its population in the first half of the twentieth century. Although this rate of growth could hardly be considered spectacular, it was one which seemed to satisfy a majority of the local citizenry.

Approximately 3.5 miles southeast of the city lay an old Army airfield. Although an active training center for pilots during World War II, it had closed in 1946. Except for the curious glances of the summer vacationers on their way to Rehobeth Beach it was practically forgotten. On 14 August, 1952, a ground-breaking ceremony was held and the reactivation of Dover Air Force Base as a major Military Air Transport Service installation was underway.² The same day, the Base Commander, and several

¹Martin, H.H., "Dover, Delaware," Saturday Evening Post, Vol. 222, No. 8 (August 20, 1949), p. 77.

²Journal Every Evening, August 14, 1952, p. 1.

of his staff addressed the Rotary Club in an effort to explain what the impact on the Dover area would be. He particularly stressed the needs of the increased population in the areas of housing, recreation and social facilities.³

Almost ten years have passed since that fateful August day. The City of Dover and its surrounding area has experienced an invasion of military personnel and their families currently estimated at over 20,000 persons. Their needs for housing, schools, retail goods, recreation and social activities have been met in one way or another. The Dover of today is quite different from the Dover of 1950. The community has expanded until today there are more people living in the contiguous housing developments than in the City itself. In 1950, Dover, for all practical purposes, was a city without suburbs.

What has happened during the past ten years to cause this growth? How has the presence of the Air Force Base influenced this growth? How does this growth of the past decade differ from that which occurred during the City's 200 year history? These are the main questions which will be dealt with in this paper.

³Dover Index, August 14, 1952, p. 1.

A. Purpose of Study

The main purpose for which this study was undertaken was to determine through the analysis of statistical data and historical reports, the effect of a military installation on a near-by community. In choosing the City of Dover - Dover Air Force Base complex, prime consideration was given to the following:

1. The complex is relatively isolated from the influence of other urban centers, and therefore the major effects would be registered in a single community.

2. The installation was relatively large when compared to other industries and employers in the area so as to affect sufficiently the statistics.

3. The City was relatively old and therefore had a well-established pattern of growth against which to contrast recent growth.

4. The installation was sufficiently close to Princeton University to make several field trips possible.

Although several studies were made during World War II of the effects of military and defense establishments on small communities,⁴ little has been done in this

⁴For example, 1. Kohler, L.T., "Neosho, Missouri, Under the Impact of Army Camp Construction: A Dynamic Situation," The University of Missouri Studies, XIX, No. 4, (1944). 2. Havighurst, R.J. and Morgan, H.G., The Social History of a War Boom Community, (New York: Longmans, Green and Co., 1951). 3. Carr, L.J. and Stermer, J.E., Willow Run: A Study of Industrialization and Cultural Inadequacy, (New York: Harper & Brothers, 1952).

field since that time. The conditions which exist during wartime however are quite different from those of peacetime - if we may so call the age in which we live. The existence of a wartime installation and any inconvenience which might fall on the local community is necessitated by the emergency existing. Another major difference between a wartime facility and a peacetime installation is that with the former there is "less expectation of permanence."⁵

In wartime, lack of housing, overcrowding in schools and various kinds of shortages are expected and borne with some degree of acquiescence. In peacetime, however, this resignation to the emergency is not prevalent in the attitudes of either the military or civilian population. Therefore the facilities needed at a permanent peacetime installation and the adjacent community are different from those normally found in the same situation during the war period.

Another purpose of this study will then be to contrast in certain respects the differences between a "war boom" and a rapid expansion situation in peacetime. The two situations arise under similar conditions, but at some point in the development of a peacetime installation an "air of permanence" is generated which considerably affects the growth of the community concerned.

In the case at hand it was quite evident from the

⁵Havighurst, et al., op. cit., p. xiv.

beginning that the Air Force expected to remain in the Dover area for a long time,⁶ however this failed to quell the doubts of many of Dover's citizens. Whether it be-
lieved in the permanency of the Air Base or not the City of Dover was faced with the major problem of expanding its municipal services, including utilities, to meet the demands generated by the housing developments being constructed adjacent to its boundaries.

While the reactivation of the Air Base was a period of rapid expansion in the community it could best be described as a "baby boom." There was not the same boom-town atmosphere that apparently prevails when a large industry decides to locate in an area. There was not the expectation of accompanying industries which seems to be characteristic of a "boom."⁷

However problems arose which would normally be expected with concentrated rapid expansion. Such problems

⁶In testimony before the Subcommittee of the House Committee on Appropriations, 1952, an Air Force spokesman contended that although the construction taking place at Dover was for a "10-year installation," this did not mean that the Air Force only expected to be at Dover for 10 years. This criteria was due to the restriction imposed by the Department of Defense which limited permanent facilities to a number capable of accommodating the 1950 strength of the Air Force. As the Air Force had already filled their quota they were not allowed to build "permanent" facilities at Dover.

⁷Institute for Urban Studies, University of Pennsylvania and Bureau of Urban Research, Princeton University, Accelerated Urban Growth in a Metropolitan Area, Vol. I (Philadelphia: University of Pennsylvania, September, 1954), Appendix I, p. ii.

as housing, school facilities, and municipal services were of particular importance and therefore they were investigated in detail. The nature of the problems and what steps were taken to reach a solution will be discussed in Chapter III of this report.

Finally the purpose of this report is to point out steps which might be taken to lessen the impact of a rapidly expanding facility, to point out the steps which the community must take in order that the period of transition be accomplished with a minimum of social disruption for all its members. It is only through good planning and cooperation of both military and civic officials that this goal can be achieved.

B. The City of Dover - Dover Air Force Base Complex

1. Location. Dover (Figure 1) lies on the Eastern Coastal Plain, approximately 45 miles south of Wilmington on U.S. Route 13, the transportation spine of the Delmarva Peninsula. The entire area surrounding the city is quite flat with the highest elevation being 75 ft. above sea level, about ten miles to the West.⁸ The plain then slopes gently towards the tidal marshes bordering Delaware Bay four miles to the East of the City.

2. Layout. The City with a 1960 population of 7,250 contains within its municipal boundaries approximately 1,200 acres. The incorporated area of the city roughly resembles an hour-glass with its sides being shaped by the St. Jones River to the East and the railroad to the West. Approximately 3.5 miles to the Southeast of the City along U.S. Route 113 lies the Dover Air Force Base (Map #2 - G9). Enclosed within its perimeter fence is an area of 3,312 acres. Residing in the barracks and 1255 units of government housing is a population of 9,000 persons (March, 1962).⁹ At present, except for a large trailer park (162 units) and one sub-division (Map #2 - E 6, Capitol Park), little intensive development has occurred along U.S. Route 113 (Map #2 - E & F).

⁸Raymond and May Associates, City of Dover, Survey and Analysis Report, 1960, Development Plan, part one, submitted to City Planning Commission, June 1, 1960, p. 7.

⁹Base Civil Engineer, "Basic Data Brochure, Dover Air Force Base, Dover, Delaware," I, (1962), Table A.

The major portion of development associated with the Air Force lies along U.S. Route 13, (Map #2 - C & D) both to the North of the City for several miles, and to the South as far as Camden (Map #2 - B8). To the South of Dover a half-dozen developments have sprung up in the past ten years. There is also a large shopping center located in the Rodney Village area (Map #2 - C7). The major reasons for development along Rt. 13 instead of Rt. 113 is that good land was available; the distance from the Air Base is sufficient to reduce the noise level of the airplanes to an acceptable limit; and the area is connected with the Base by excellent roads and highways. Thus, commuting is no problem. Another factor in the preference for development along U.S. Route 13, especially for retail concerns, is the strategic locations along a major North-South highway. This advantage is obvious when one considers the number of motels and trailer parks adjacent to the South bound lane of U.S. Route 13 for several miles North of the City.

The Dover - Dover Air Force Base Complex may be seen to be roughly triangular in its configuration (see Map #1). At the vertices of the triangle lay the City of Dover, the Dover Air Force Base and the twin communities of Camden and Wyoming. Development along the legs of the triangle has been concentrated between Dover and Camden - Wyoming. Recent expansion although slowed from its rapid growth in the late fifties, seems to be concentrated on

the left side of the triangle. As long as there is sufficient land available in that area it is not probable that new developments will be located nearer the Air Base than at present. However, the area near the Air Base may be suitable for industrial locations where noise level is not a vital consideration.

The "Complex" may be thought of as the heart of Kent County. It is centrally located and straddles the main transportation arteries. Through the Dover "Complex" pass the agricultural products of the county, and here also is the retail center for the small farm communities. The Air Base draws its civilian labor force from all corners of the County and in turn the military personnel sees housing in every nook and cranny as we shall soon see. The presence of the Air Base has done much to step up the tempo of the "heart beat" although it may have caused the rhythm to be a little erratic at times.

3. General Characteristics. Natural characteristics of Kent County may be briefly summarized as follows:

1. Climate: The climate is moderate although high humidity in the summer is often oppressive. The average summer temperature is 76°F and average winter temperature is 43°F. The annual growing season is approximately 187 days, while the annual rainfall is slightly greater than forty-seven inches. The moderate climate, together with an absence of heavy snowfall during the winter months make flying conditions at Dover ideal.

2. Terrain: The St. Jones River, which passes through the center of the "Complex", carries a total length of 3.6 miles before entering the Delaware Bay. It has a drainage area of 94 square miles. The eastern edge of Kent County consists of marshland varying in width from two to five miles. A large portion of this marshland is included in the Bombay Hook National Wildlife Refuge (See Map #1).¹⁰

3. Geology: The Coastal Plain has surficial deposits of Pleistocene sands and gravels. The coarseness of these deposits promotes ground-water recharge. The limitation of the availability of present ground-water supplies and topography unfavorable for reservoirs may be a controlling factor in the future development of the area. It also would make the area undesirable for location of those industries requiring large amounts of fresh water.

¹⁰State of Delaware, Interstate Water Resources Survey 1959, (Dover, Del., 1960), Section V, passim.

C. Significance of This Type of Study

1. Military Planning Principles. The U.S. Army Corps of Engineers has recently released its revised manual on "Master Planning, Principles and Procedures." In the discussion on "regional and vicinity factors," particular emphasis is placed on the role of the Army installation as "an integral part of the community" and "the impact on the physical and economical character of adjacent civilian communities."¹¹

In revising the 1947 edition of the Manual to its present version, the following paragraph has been added:

Coordination of Planning with Local Governing Bodies. Studies of all regional and vicinity factors should be made with the assistance of local governing bodies in order to coordinate planning in areas of joint interest. Disregard for the needs and desires of adjoining land development may result in damage to local government, private ownership, or to the installation itself. Evaluation of the regional factors and resultant decisions, that have a bearing on the future development of the installation, should become a matter of record in the Analysis of Existing Facilities for future reference by subsequent planning board members.¹²

It is the author's belief that this statement shows a growing realization on the part of the military planners of the need for greater coordination with local officials. The military installation does not exist in a vacuum. It is not self-sufficient, no matter how hard it may strive towards that goal. The same is true of the

¹¹U.S. Army Corps of Engineers, "Master Planning, Principles and Procedures." EM210-3-1, 30 Nov., 1961, p. 3.

¹²Ibid., p. 4.

nearby communities especially if they are small in relation to the installation. Whether or not they desire it, they will soon become dependent on the base for at least a part of their economy. They will be called upon to render increased services to the military personnel residing in the community. If this mutual support can be conducted in a spirit of cooperation, the strain on both "communities" is lessened. This is especially important during peacetime where the existence of a military base is usually a long-time proposition.

While a sudden increase of population in an area demands increased community facilities such as schools, churches, housing, etc. the needs of both the military and civilian community dictate that the expansion be orderly and controlled. In this respect it is up to the military at the earliest possible moment and as far in advance as practicable, to inform the local officials, as well as the citizens of the community of the ultimate extent of the expanded facility. This should not only be given on a space requirement basis, but also the number of personnel involved and the economic impact should be delineated.

If such a process is followed the community can take the steps necessary for orderly expansion. The local planning officials can anticipate what changes may be required in local zoning and housing ordinances and plan accordingly. Local businessmen can plan for expansion on a logical basis. Local investors know what can

be expected in the demand for housing, and can plan accordingly thereby eliminating the void often occupied by the speculator, who is willing to take any risk, because he knows the rewards are so great. Local municipal officials can plan an orderly expansion of their services instead of a haphazard attempt here and there to correct crises which build up due to the rapid development. This study will show what was done in Dover. Possibly the lessons learned will be applicable to problems generated under similar circumstances in the future.

2. Airfield Encroachment. In recent years much interest has been given to the "ever-expanding airfield" in an "ever-expanding community." Airfields, both military and civilian, which only a few years back were located miles outside of a city are today in the urban fringe. As suburbs continue to expand they may encroach on an airfield despite the noise and potential danger involved.¹³ Should this encroachment continue unchecked it may be necessary to relocate the installation, in whole or in part, when it becomes impossible to expand operations at the existing location. Such a situation existed at the Bethpage site of Grumman Aircraft on Long Island and necessitated a relocation of part of their operations to Calverton, Long Island in 1952.¹⁴

¹³Ribbink, E.F.V.L., "Community Planning and the Naval Air Station," U.S. Naval Institute Proceedings, May 1955, p. 542.

¹⁴Klingenmeier, R.J., Jr. and Cahill, H.P., Jr., A Case Study of the Environmental Growth and Development of the Grumman Aircraft Engineering Corporation as a

Dover Air Force Base lies sufficiently far from existing communities that encroachment is not a problem - today. At the present there is no zoning ordinance in Kent County. In fact there is no planning authority for Kent County, and only recently has the State set up a statewide planning commission. Planning has been authorized only for incorporated municipalities under State Law. Although Dover has had a zoning and housing ordinance for years and now has a comprehensive plan, its authority does not extend beyond the city limits. As a result no matter how good the cooperation between City and Base officials little can be done to protect the Base's interests in this case. Fortunately development has centered on Route 13 instead of Route 113 (see May #2).

While this is the situation today it may not always be so. A recent newspaper article relates the shift in emphasis on the mission of MATS from passenger to cargo-carrying capacity - the main function at Dover. In order to accomplish this mission more efficiently the utilization of jet cargo-carriers has been indicated.¹⁵

Such a move would probably require an extension of runways at Dover. Because of increased noise level even greater peripheral areas may be required than at present.

Component of the Naval Industrial Shore Establishment,
unpublished Masters Thesis, Princeton University, 1956.

¹⁵Trenton Evening Times, 27 March, 1962, p. 1.

The above are problems which can be handled by adequate planning. They also indicate that "impact" can be measured in many ways, both positively and negatively, and that while it may decrease in certain phases of interaction between the military and civilian community, it never ceases to exist.

Chapter II
GROWTH PATTERNS

A. History

1. The founding period. The founding of Dover was authorized in 1683 by William Penn, the Governor of the Commonwealth of Pennsylvania, who also held the lease and deed to the "Delaware Counties." Because of the distance to the nearest county seat at Whorekill (Lewes) it was deemed advisable to establish another in the center of the County of St. Jones (now Kent). Although a court house was erected about 1697 the town itself was not laid out until 1717, and grew slowly until the Revolution.¹

With Independence declared, Delaware became a State and in 1777 Dover was named the capitol. The representatives from Delaware meeting in Dover were the first to ratify the Constitution in 1787, and thus earned for Delaware its nickname "the First State." From Revolutionary times until 1850, Dover grew slowly, and except for being the scene of stormy battles for control of the State Legislature, served mainly as a small trading center.

2. Civil War Period to 1940. In 1850 the railroad arrived at Dover, and precipitated a change in the agricultural technology of the surrounding area. More

¹Scharf, T.J., History of Delaware, 1608-1888, (Philadelphia: L.J. Richards & Co., 1888), pp. 1042-1043.

intensive agriculture shifted the crops from wheat and corn to vegetables and fruit. This shift was given even greater impetus in 1867 with the invention of the "artic car" for the Delaware Railroad, and Dover became the center of the peach industry.²

The first half of the twentieth century saw the growing importance of Dover as a modern state capitol. This importance was also enhanced by the fact that a large percentage (approximately twenty percent in 1938) of major U.S. Corporations list Dover as their home office, being registered under Delaware's liberal corporation laws. In 1924, the modern four-lane Dupont Boulevard was completed linking Dover with Wilmington to the North and Seaford to the South. In 1929, "the Town of Dover" became "the City of Dover" and adopted a modified city manager type of government.³

The airport that has figured so significantly in Dover's history during the past two decades was built in 1940 by the City of Dover and the Civil Aeronautics Administration. An old reporter of the Dover scene claims that the original idea of locating an airport at Dover arose in 1938. In that year a group of Chicago executives flying to Dover for their corporation's annual meeting

²Reed, H.C., Delaware, A History of the First State, (New York: Lewis Historical Publishing Company, Inc. 1947), I, 375 et seq.

³Federal Writers Project, Sponsored by Edward W. Cooch, Lieutenant Governor, Delaware. A Guide to the First State (New York: The Viking Press, 1938).

were forced to land in a grass covered field outside of the City. Apparently they felt that Dover should have a paved runway, and shortly thereafter the CAA contacted the City officials on the possible sites for an airfield location. The City bought the land and the CAA was to build a runway 1500 feet in length, and accompanying terminal facilities. However, early in 1941, the CAA stopped work on the field because of a shortage of funds.⁴ Ten days after war was declared however the Army took over the airport from the City for "the duration of the war and six months thereafter."⁵

3. World War II. Over the Christmas holidays in 1941 an Engineering Group of the Pennsylvania National Guard arrived in Dover to build gun emplacements at the newly commissioned Dover Army Air Base. As there were no facilities constructed at the airfield the men were billeted in the school field house and fed in the cafeteria. Temporary mobile units such as shops and radio transmitters were set up and operations commenced immediately. During the first year of the war the Base was used by coastal patrol craft searching out Nazi submarines.

In 1943 the mission of the field was changed to the training of fighter pilots. This necessitated a major

⁴McSherry, H.C., Personal Interview on 19 April, 1962, Dover, Delaware.

⁵Delaware Archives Commission, State of Delaware, Delaware's Role in World War II, 1940-1946, (Dover, Delaware, 1955), I, 64-67.

construction program in order to enlarge the runways and build additional facilities. During the latter part of the War, the Base was used as a rocket development center. After peace was declared the Base became a pre-separation center for returning GI's and then in 1946 it reverted to a temporary inactive status.⁶ For the next five years the Base was manned by a single officer and about a dozen fire-fighters who also served as caretakers.

4. The Last Decade. Dover during the war had experienced no industrial expansion, and with the close-down of the Base returned to its role as a political-trade center. However, in 1952, the military again entered the local scene as the announcement was made of the reactivation of the Dover Army Air Field. This time, however, the field would be called the Dover Air Force Base and would be the East Coast terminal for the cargo operations of the Military Air Transport Service.

The reasons for selecting the Dover airfield for this mission, as given by the Air Force spokesman during the 1952 Congressional Hearings, were as follows:

Our first requirement for an aerial port of embarkation, of course, is that it be as close as possible to the theater in which we are going to operate. (In this instance, the Atlantic-European and African zones are implied.) This, of course, is on the east coast, and it is also south of the snow belt so that it interferes with our operation as little as possible.

The next requirement is that it be close to a seaport of embarkation in order to get flexibility....

⁶Ibid., p. 66.

We have to be able to pull out of the port the things that happen to be really critical.

We surveyed the east coast, and this was one of the two bases selected as satisfactory, and it was available.⁷

The need for a new location for the MATS operation was required because their former operating facility, Westover Air Force Base in Massachusetts, was being taken over by the Strategic Air Command.⁸

The initial request of the Air Force was for approximately \$25,000,000 to expand and renovate the existing facility, however in this initial request no provision was made for the construction of family quarters. By 1956, the housing shortage in the Dover area showed no signs of easing, and in that year the majority of the seven million dollar appropriation requested was for the construction of family housing. This subject will be dealt with in more detail in Chapter III.

During the initial five-year period of Base construction and personnel build-up, the City of Dover also experienced "growing pains." Although the majority of construction was accomplished by out-of-state contractors, the local labor force was severely drained. Local contractors worked mostly as sub-contractors or on small projects.

⁷U.S. House of Representatives, Eighty-second Congress, Hearings Before a Subcommittee of the Committee on Appropriations - First Session on Military Public Works Appropriations for 1952, (Washington, D.C.: U.S. Government Printing Office, 1951), pp. 428-429.

⁸Ibid., p. 429.

The City was required to extend municipal services, especially electricity, water and sewer lines outside the City limits to the new housing developments ringing its periphery. This expansion is still in process today as is seen by the recent decision of the City to greatly increase the capacity of its power plant. In order to control the growth a City Planning Commission has been created, and the Dover Housing Authority reactivated. Many developments in the past decade have borne out the results of inadequate planning.

The history of the City of Dover has changed rapidly during the past ten years. The impetus given its growth by the Air Force has started a general renaissance of growth. Since 1950 over 25 businesses have established Peninsular offices in Dover.⁹ Today, Dover is a thriving community in which the annual twenty-seven million dollar payroll of the Dover Air Force Base is an important factor. The City has a proud history and with proper planning and controlled development can retain the memories of the past, and still be a modern city of the future.

⁹McSherry, H.C., Personal Interview.

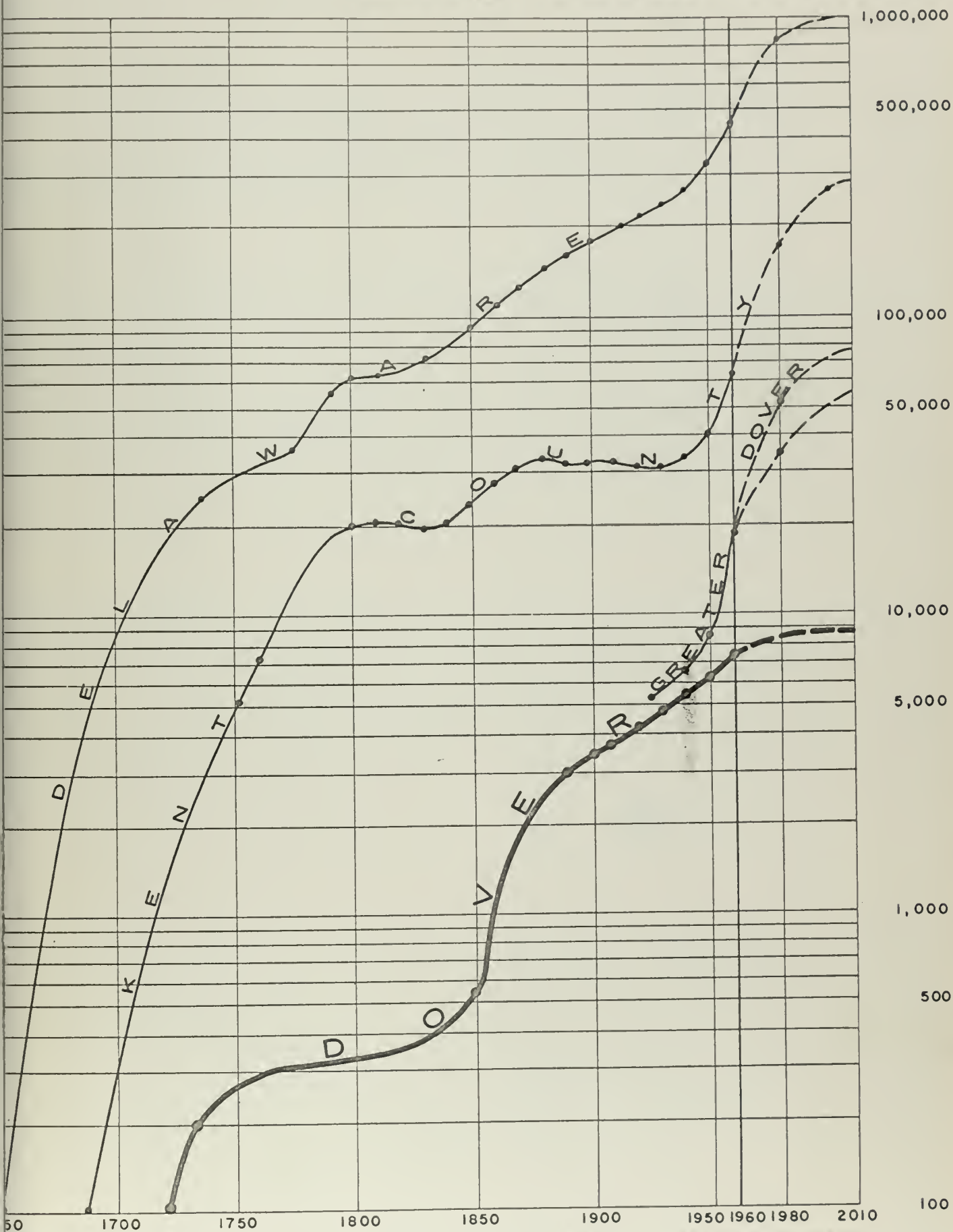
B. Population

1. Growth Patterns. Although the 1960 U.S. census reports are not yet completely published, the population statistics and the general social and economic characteristics are available. By comparison of various data extracted from the 1940, 1950 and 1960 census reports, much can be learned of the effect of the Dover Air Force Base on both the City of Dover and Kent County. Unfortunately most of the census data are tabulated for these two entities alone. As the majority of growth has occurred outside of the incorporated limits of the City, it is not reflected in the Dover data. In the same way, the growth of Kent County, while appreciable, would indicate growth and changes in social characteristics over the whole County while in fact it is concentrated in the small triangular area of the "Complex" (see page 9). However, since more detail data are not available as to what is occurring in the relatively compact urban fringe of Dover, it is necessary to do the best with what is on hand.

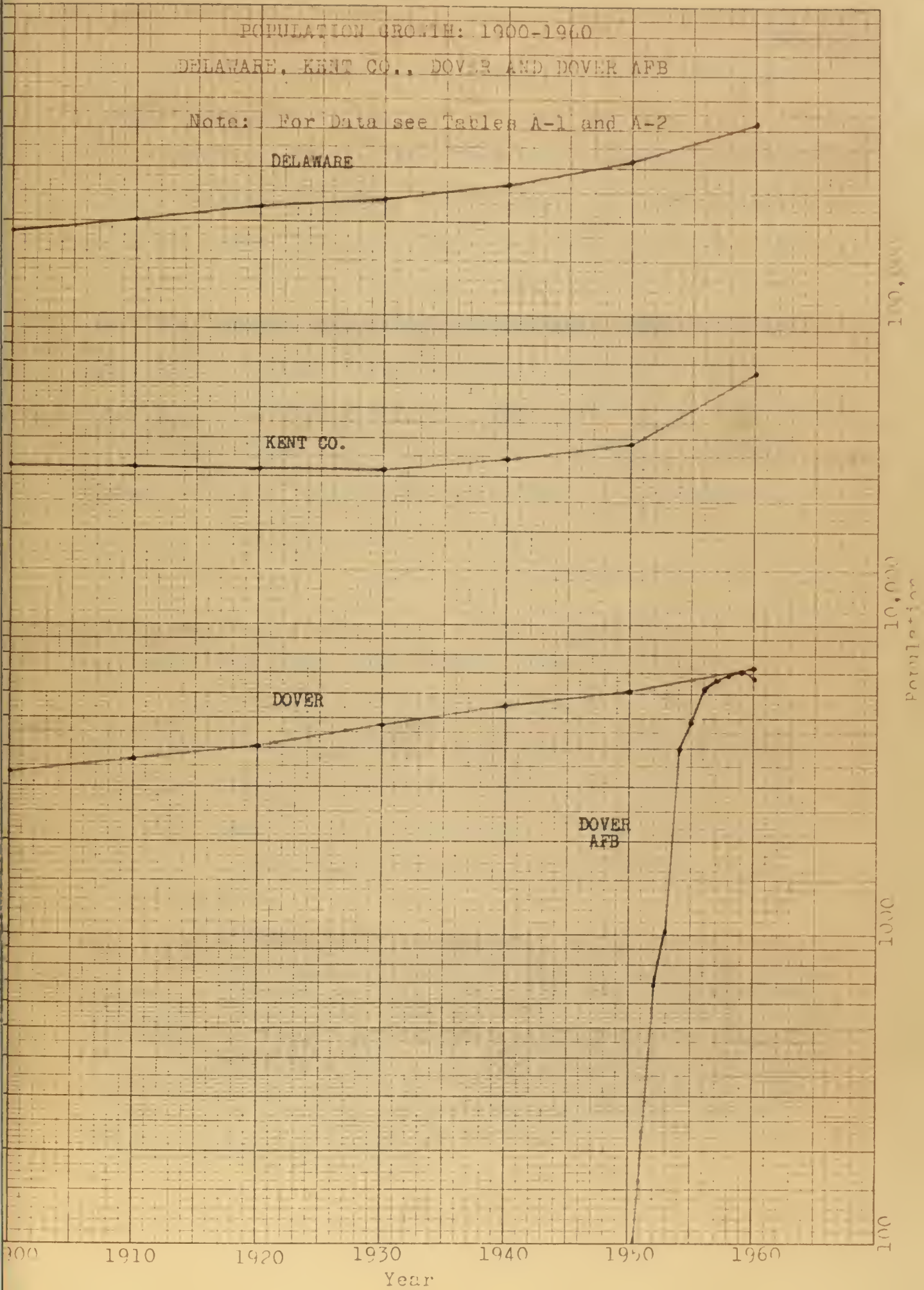
The historical influences previously mentioned (page 17) on the growth of Dover are quite apparent from Figure 2. This shows the steep rate of growth during the founding period and again with the coming of the railroad in 1850. Since the turn of the century the rate of growth of Dover has been fairly constant (Figure 3) - even during the last decade. Again this is due to growth outside the

TOTAL POPULATION

long term trends



SOURCES: Based upon U.S. Census reports, various Delaware histories, estimates & projections by Raymond & May Associates, & projections by Delaware Highway Department.



city limits in suburban developments, not being reflected in the data for the City.

Kent County, on the other hand, shows quite a different pattern of growth. As the land was taken over for farmland before 1800 the growth rate was very high. However at that time a level was reached at which the land could not support additional population. About 1850 however, with a change in agricultural land use, a jump in population occurred which once again leveled off during the period 1890-1930. During this latter period a negative growth rate was experienced due mainly to out-migration to the industrial area around Wilmington or to richer farmland in the West.¹⁰ During the Depression years this out-migration slowed down due to lack of opportunities existing elsewhere but began again during World War II.

During the last decade the growth of Kent County has picked up appreciably. While much of this growth can be contributed to the influx of military personnel there are other factors to be considered. If we were to assume that all 16,638 persons¹¹ directly connected with the Air

¹⁰Raymond and May, op. cit., I, 16.

¹¹This figure is probably very close to the actual number of migrants in Kent County directly connected with the Base. This figure does not include the dependents of civilians of which approximately a thousand have migrated into the area since 1950. This approximation is based on an estimate given by the Base civilian personnel officer of a seventy percent local - thirty percent outside labor force. This uncounted excess then compensates in some measure for the civilian employees and military families living outside the County.

Base in 1960 (Appendix A - Table A-2) were living in Kent County, this would only account for fifty-nine percent of the County's population increase. The fact that the Base acts as a magnet for business enterprises is realized, but it is not the whole answer. The fact that many regional offices are being located in Dover to serve the needs of the entire Delmarva peninsula is indicative of one factor affecting the growth rate of the County (page 21).

Aside from the invasion of military personnel into the Dover area there has been another prominently migrant group. Potato growers, forced out of Long Island by encroaching suburbanization, have relocated in the farmlands around Dover. Once again the shift in agricultural products has caused a change in the County's growth. Also more crops are being raised which can largely be handled by machinery. This year for example almost fifty percent of the usable farmland will be covered by soybean crops.¹² This mechanization makes possible more intensive cultivation of the soil, and thereby increases the ability of the soil to support additional population.

The State of Delaware has not experienced the fluctuations of growth rate evidenced by Dover and Kent County. However while the rate of growth was fairly constant during the period 1900-1940, World War II industrialization caused a sharp change in the growth rate which has nearly quadrupled in the past two decades (Table 1).

¹²Vapaa, G.K., Kent County Agricultural Agent, Personal correspondence dated April 20, 1962.

Table 1

RATE OF POPULATION CHANGE^a

Kent County, State of Delaware, and the United States

1900-1960

	<u>Kent Co.</u>	<u>Delaware</u>	<u>United States</u>
1900-10	0.0	1.0	2.1
1910-20	-0.5	1.0	1.5
1920-30	-0.3	0.7	1.6
1930-40	0.8	1.2	0.8
1940-50	1.1	2.1	1.4
1950-60	7.34	4.03	3.3

^aRate is in Average Yearly Percent Change. Source: U.S. Bureau of the Census, U.S. Census of Population: 1940, 1950 and 1960.

Table 2

NATURAL GROWTH

From Kent County Vital Statistics

<u>Year</u>	<u>Births</u>	<u>Deaths</u>	<u>Natural Increase</u>	<u>Year</u>	<u>Births</u>	<u>Deaths</u>	<u>Natural Increase</u>
1940	594	502	92	1950	886	454	432
1941	656	531	125	1951	889	462	427
1942	628	503	125	1952	963	461	502
1943	679	492	187	1953	1,028	453	575
1944	706	510	196	1954	1,113	436	677
1945	621	488	133	1955	1,412	465	947
1946	797	517	280	1956	1,629	465	1,164
1947	885	500	385	1957	1,866	486	1,380
1948	878	533	345	1958	1,908	542	1,366
1949	838	407	431	1959	2,034	514	1,520

Source: Delaware State Board of Health

Principally this change has been concentrated in the Wilmington area, but the increased growth in both Kent and Sussex Counties is also contributing to the overall picture.

One factor concerning Dover Air Force Base in its relationship to Dover, which does not show up in the census statistics, is its population impact during World War II. The 1940, 1950 census reports bracket this period and indeed do not in any way reflect the influence of the Air Base during that period. During the War period no population figures are available for the City of Dover. However Table 3 indicates the estimated population figures for Kent County during that time. These figures do not include military personnel.

Table 3

ESTIMATED POPULATION OF KENT COUNTY^a 1940-1946

In thousands

<u>1940</u>	<u>1942</u>	<u>1944</u>	<u>1946</u>
34.4	31.3	30.3	33.8

^aSource: Sales Management - "Annual Survey of Buying Power," dated April 10, 1941, May 10, 1943, May 15, 1945 and May 3, 1947.

The gradual decrease during the War can be attributed mainly to those leaving to go into defense industries and to those entering the military service. This too explains the resurgence of population back into the

County with the end of the War. Although the number of personnel stationed at the Airfield during the War is not officially known, several of those interviewed who lived in Dover during the War estimated an average of about 5,000. The majority of personnel were merely sent there for thirty days training and then went on to other stations. Therefore it may be said that the impact of the Base on Dover due to additional population was very small, and approximately balanced out those who left the County.

In order to determine more accurately where in the County the recent population impact has been greatest, Table 4 was prepared. This table gives the population of the various civil districts, and actually splits the County up into geographical areas in which in this instance it is relatively easy to spot the concentration of Air Force personnel. This table shows that during the 1940-1950 period the greatest population change was taking place in Districts 1 and 2 where the percentage change was 26.0 percent and 20.3 percent respectively. However in total population change, Districts 1 and 5 showed the greatest absolute gains and accounted for 52.5 percent of the population growth of the County. As seen on May #1 District 1 contains the towns of Smyrna while Dover is contained in Districts 2 and 5.

By 1950 the presence of the Air Base had skyrocketed the population of District 2 by a 319.2 percent increase. Even if the actual population of the Base

Table 4

KENT COUNTY POPULATIONBy Minor Civil Divisions: 1940 to 1960^a

<u>Divi- sion</u>	<u>Population</u>			<u>Pop Chg</u>		<u>% Chg</u>	
	<u>1940</u>	<u>1950</u>	<u>1960^b</u>	<u>1940-50</u>	<u>1950-60</u>	<u>1940-50</u>	<u>1950-60</u>
1	3,506	4,422	6,084	916	1,662	26.0	37.6
2	3,530	4,248	17,806	718	13,558	20.3	319.2
3	2,527	2,671	3,361	144	690	5.7	25.8
4	2,502	2,555	3,716	53	1,161	2.1	45.5
5	5,169	6,052	9,125	883	3,073	17.2	50.8
6	2,274	2,168	2,626	-106	458	-4.6	21.1
7	3,745	3,838	7,880	93	4,042	2.5	105.3
8	3,200	3,269	5,168	69	1,899	2.2	58.1
9	4,288	4,418	4,956	130	538	3.0	12.2
10	<u>3,700</u>	<u>4,229</u>	<u>4,929</u>	<u>529</u>	<u>700</u>	<u>14.3</u>	<u>16.6</u>
Total	34,441	37,870	65,651	3,429	27,781	10.0	73.4

^aSee Map #1 for boundaries of divisions.^bIncludes military personnel and dependents residing in locations shown.

Source: U.S. Bureau of the Census: U.S. Census of Population: 1960. General Population Characteristics.

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(those living in base housing and in the barracks)¹³ is deducted from the District 2 total the increase is still 170 percent. This is due mainly to housing developments such as Capitol Park (Map #2-6E) and Capitol Green (Map #2-4D) which were built during this period. However, the concentration of population growth in the "Complex" area, which is fully contained in Districts 2, 5 and 7, is apparent as these Districts accounted for 74.4 percent of the 1950-1960 growth in Kent County. Furthermore, these Districts now (1960) represent 53 percent of the total population of the County as compared to 37 percent in 1950.

Before leaving the subject of population growth one other pattern should be considered - that of the Greater Dover Area (Figure 1). This Area was delineated by the consultants to the City Planning Commission to include "the area which might well be annexed to the City within the next decade."¹⁴ For this reason the Greater Dover Area does not include the Camden-Wyoming area or any portion of the Dover Air Force Base. Although this Area includes much of the population growth generated by the Air Base, it is not as comprehensive as the growth patterns set by the "three Districts" mentioned above, and thus is not used in this report.

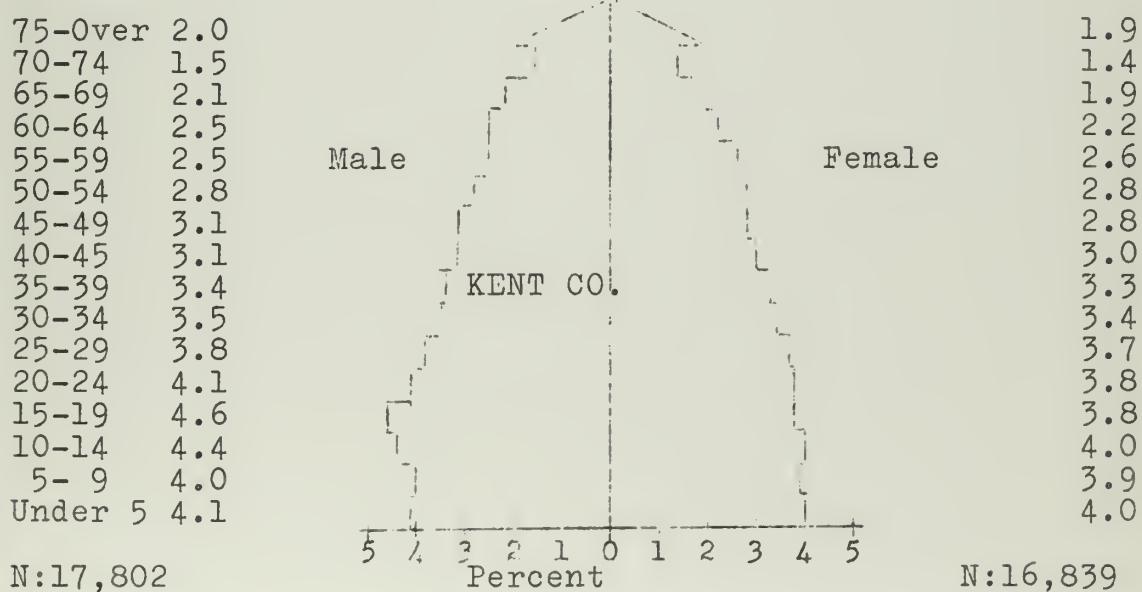
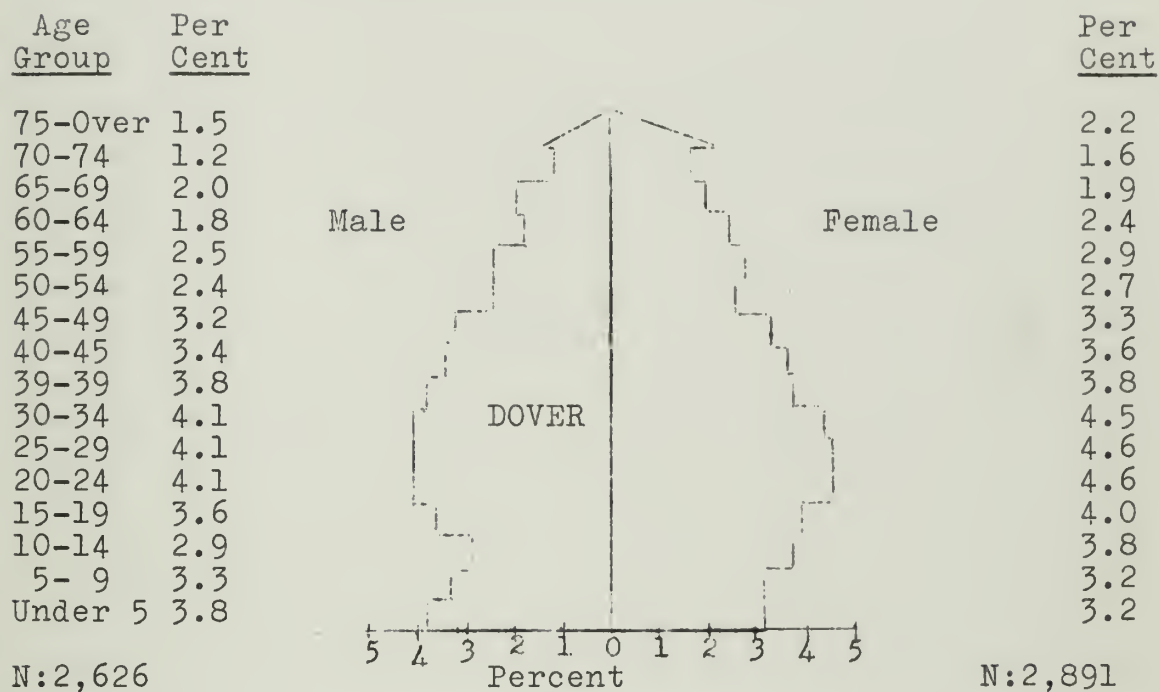
¹³This total was 6,317 and includes 3,328 military and 2,989 dependents. This figure was obtained from a chart used by the Base Civilian Personnel Officer in an indoctrination lecture and dated May, 1960.

¹⁴Raymond and May, op. cit., I, 23.

2. Age-Distribution Profiles. By comparison of the population pyramids shown in Figures 4,5 and 6, it is possible to see the difference in the composition of the Air Force population from that which already existed in Dover and Kent County. The 1940 profile for Dover shows an aging population with the majority of both males and females in the 20 to 40 year groups. The pinching at the bottom of the profile is typical of 1940 profiles in that it reflects the depression years. The 1950 pyramid for Dover is interesting in that there is an almost constant percentage in each age group until the age of 50. One exception being in the 0-5 category where the increased percentage is indicative of the post-war baby boom. The constant proportion in each group is probably caused by the large number of professional men in the community, which would weight the 35-50 group higher than would normally be expected. Again the existence of the many State offices in the City would bring in older men to fill the various governmental positions. While not as pronounced in the 1960 profile, this observation is still valid especially for the females. However we do notice in the 1960 pyramid a broadening of the base reflecting the rapid increase of the "population boom."

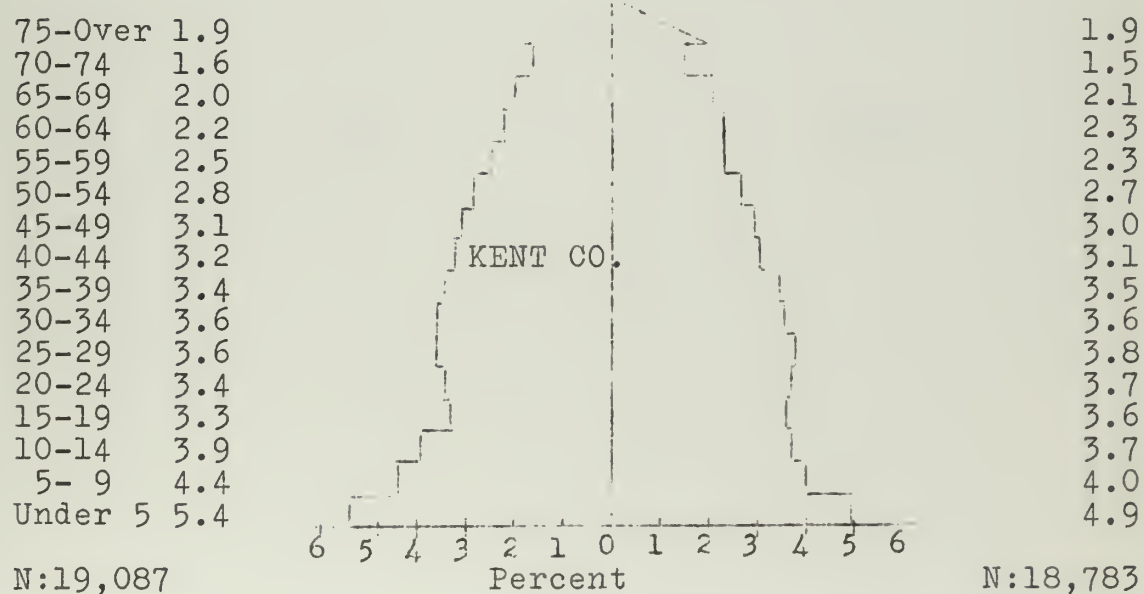
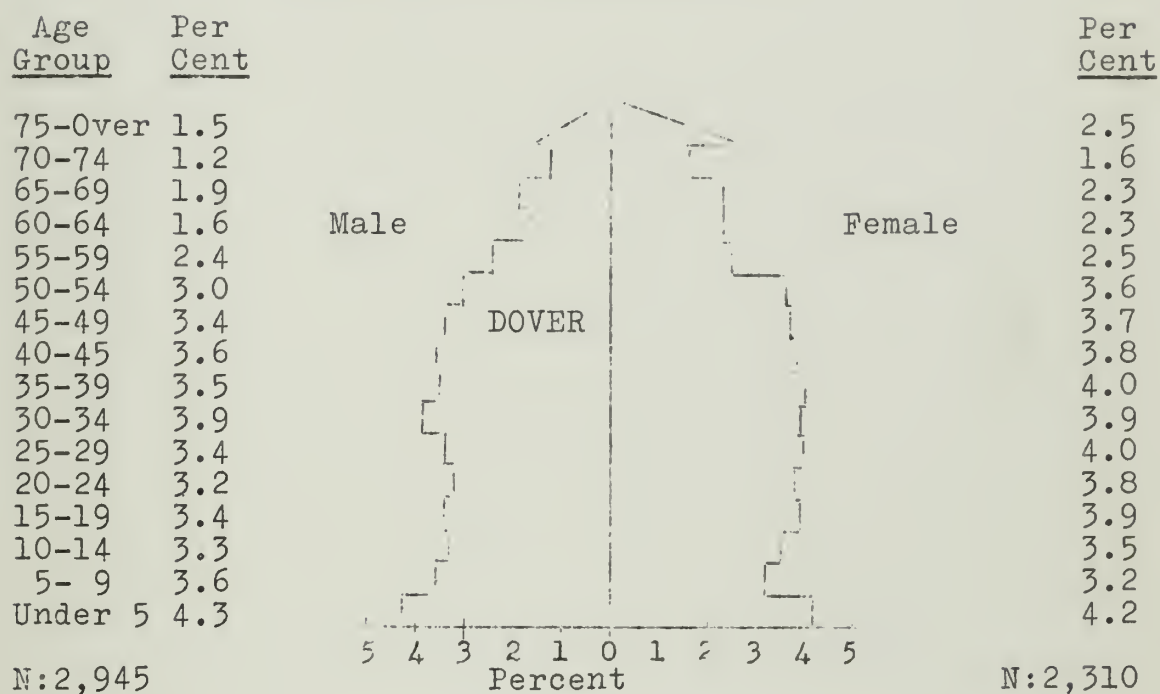
It is in the Kent County pyramids that once again the influence of the Air Force population is most pronounced. The change in profile from 1940 to 1950 is as in Dover mainly apparent in the broadening of the base,

Figure 4

POPULATION PYRAMIDSDOVER AND KENT COUNTY: 1940

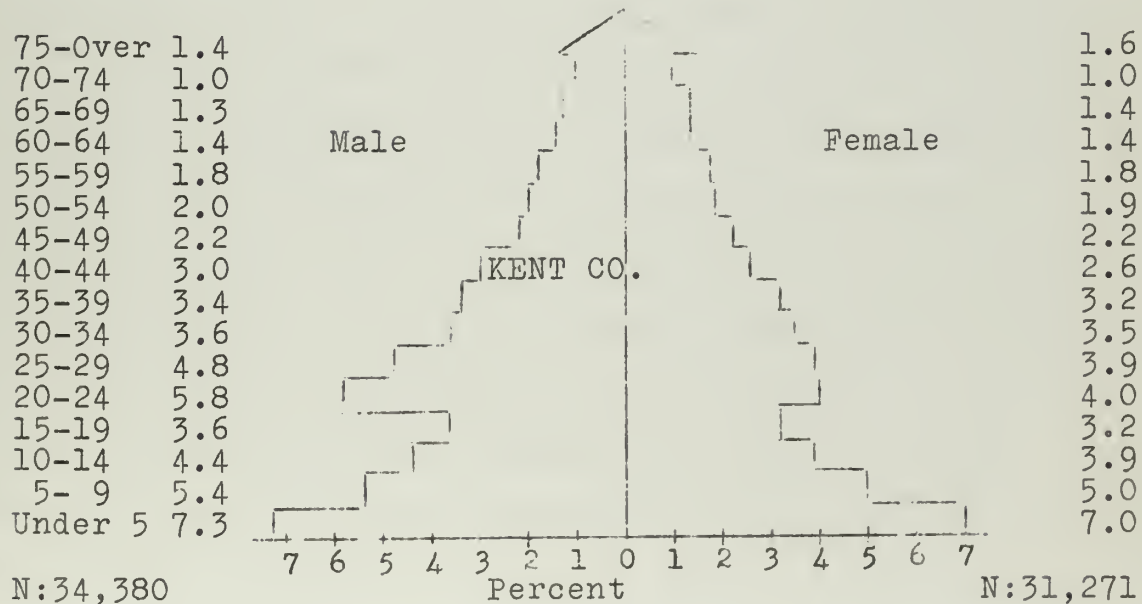
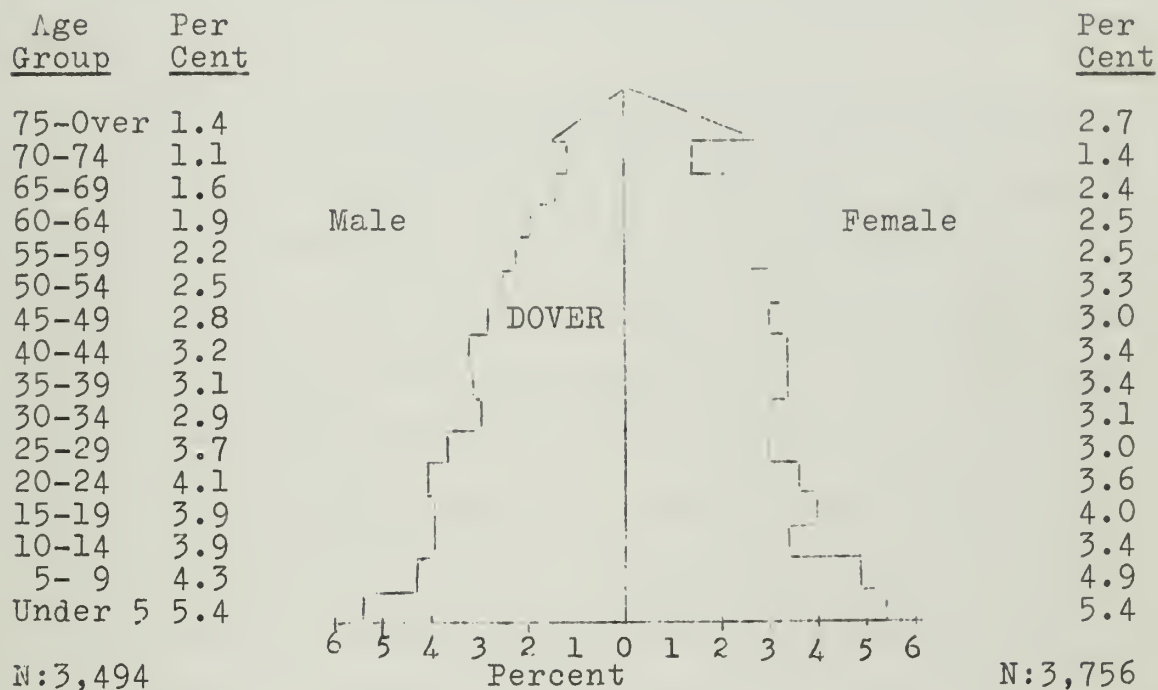
Source: Based on Data in Appendix A - Table A-3.

Figure 5

POPULATION PYRAMIDSDOVER AND KENT COUNTY: 1950

Source: Based on Data in Appendix A - Table A-3.

Figure 6

POPULATION PYRAMIDSDOVER AND KENT COUNTY: 1960

Source: Based on Data in Appendix A - Table A-3.

although in the case of Kent County this broadening is considerably greater. It should also be remembered that in 1950 the population of Dover represented one-fifth of the County total and thus had appreciable influence on the age-sex characteristics.

The 1960 pyramid for Kent County clearly shows the influence of the "migrant" military population. The large percentage of young males in the 20-30 year groups can be attributed to the large number of single airmen and officers serving their three years compulsory service. On the other hand, with early retirement policies, and the non-existence of aged in the military community, the military population is always a young one. Indeed the high proportion of young males and females of child-bearing age is reflected in the large proportion of children in the below ten category. One different aspect of this profile which is typical of that of a migrant population is that this pyramid will not change shape through the years, as long as the influence of the Air Force population is so great. This results from the fact that a man is usually replaced in his job at the end of his tour of duty, by a man of approximately the same grade and age which he was when he entered the community. Thus the military community is always a "young community" even though the population grouping of which it is a part may be aging.

Another aspect of the military community dominance of the population characteristics of the County is seen

in Table 5. The dominance of males in the 1940 and 1950 data is indicative of the rural character of Kent County. However the high proportion in 1960 must be attributed to the large number of young military men.

Table 5

KENT COUNTY SEX RATIOS 1940-1960

<u>Year</u>	<u>Males per 100 Females</u>
1940	103
1950	101
1960	105

Source: U.S. Census of Population: 1940, 1950 and 1960. General Population Characteristics.

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Kent County is an excellent example of where a single land user, supporting a concentrated population such as a military installation, can greatly change the apparent social structure of the area while in fact it changes it very little. Table 6 below indicates that Kent County during the past decade has been largely "suburbanized."

Table 6

PERCENT OF POPULATION IN URBAN AND RURAL TERRITORYDelaware and Kent County 1950 to 1960

		<u>1950</u>	<u>1960</u>
% Rural	(Delaware	26.6%	29.5%
Non-Farm	(Kent Co.	50.1%	71.0%
% Rural	(Delaware	10.4%	4.9%
Farm	(Kent Co.	27.5%	9.6%
% Urban	(Delaware	63.0%	60.9%
	(Kent Co.	22.4%	19.4%

Source: U.S. Bureau of the Census, U.S. Census of Population, 1960, General Population Characteristics.

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This is borne out by the fact that the Rural Farm population has decreased from 27.5 percent to 9.6 percent of the total population. Meanwhile the Rural Non-farm population has increased from 50.1 percent to 71.0 percent of the total. However, once again this change is largely caused by the large number of military personnel and their families living in the urban fringe around Dover, and in this instance at the Air Base itself. The County as a whole remains largely rural.

3. Ethnic Composition. The ethnic composition of Kent County has changed only slightly in the decade between 1950 and 1960. The increase in population has brought a decrease in the percentage of the non-white population

(Table 7). The proportion of foreign born has remained relatively stable.

Table 7

ETHNIC COMPOSITION - KENT COUNTY 1950-1960

	<u>1950</u>		<u>1960</u>	
	<u>Total</u>	<u>Percent of Total</u>	<u>Total</u>	<u>Percent of Total</u>
Native white	30,068	79.9	54,190	83.0
Native non-white	6,947	18.4	9,991	15.2
Foreign born	<u>855</u>	<u>1.7</u>	<u>1,470</u>	<u>1.8</u>
Total	37,870	100.0	65,651	100.0

Source: U.S. Bureau of the Census. U.S. Census of Population: 1950 and 1960. General Social and Economic Characteristics

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Once again however it is possible to see the effect of the Air Force personnel on the total. By examining the enumeration of labor force for both white and non-white males it was ascertained that of the 6,497 males in Kent County in the Armed Services, 644 were non-white. Thus the non-white military population represents only 10 percent of the total, while the corresponding figure for the County is 15.2 percent. Therefore while it appears that the non-white population of Kent County is decreasing, it may only be as a result of the influence of the composition of the military force and their families.

4. Migration vs. Natural Increase. With a large proportion of the population of an area in an "enforced

migration" military community, to say that migration into that area is an important factor is a rash understatement. Therefore it is not surprising that in the 1960 Census, 30.4 percent of the persons five years or older living in Kent County indicated that they had lived in a different county in the United States during the 1955-1960 period. With a three year tour-of-duty being the norm for military personnel, it is virtually safe to say that none of the military personnel or their families had resided in Kent County alone during that period. However if this migrant military population is removed from the County total, the percentage is closer to five percent.¹⁴

Since there is evidence of considerable migration into the area (potato famers, State officials and new residents) this figure seems very low, especially when one considers the State percentage to be 16.8 percent. As this census determination is made on a sampling basis it can only be concluded that in this instance the sample was a poor one.

Again a common means of evaluating net migration in determining the growth of an area is to subtract the natural increase from the total increase. Table 2, page 28 shows the Natural Increase in Kent County from 1940 to

¹⁴This percentage was calculated by using the Base population of 16,638 explained in footnote 11. This figure was reduced by fifteen percent to allow for children under five years of age. Then working backwards on the Kent County population figure it was determined that only 2,962 of the 56,319 population over five years of age answered in the affirmative.

1959. This table is interesting in another respect in that it is one of the few statistical summaries available which shows the influence of the military population of the Base during the War years. The high Natural Increase in the years 1943 and 1944 is indicative of a larger segment of young families in the County. However it must be noted

Table 8

NATURAL GROWTH AND NET MIGRATION - KENT COUNTY

	1940-1950		1950-1960	
	<u>Inc.</u>	<u>% Inc.</u>	<u>Inc.</u>	<u>% Inc.</u>
Natural Growth	2,299	61%	9,000	32.4%
Net Migration	<u>1,459</u>	<u>39%</u>	<u>18,781</u>	<u>67.6%</u>
Total Increase	3,758	100%	27,781	100.0%

Source: 1) Natural Growth Data: Bureau of Vital Statistics, State Board of Health, Dover, Delaware.

2) Total Population: U.S. Bureau of the Census, U.S. Census of Population: 1960 General Population Characteristics Delaware Final Report PC(1)-9B.

that much of the "natural increase" during this latter decade is due to the migrant military families. These young families also have a lower death rate than one would normally expect in an established community so little value can be placed on the figure of net migration so obtained.

However using the natural growth statistics in Table 2 we do get an indication of the part that migration

has played in the County's growth during the last decade. Table 8 shows that in the 1940-50 period, net migration accounted for 39 percent of the growth. During the 1950-60 period net migration is now seen to account for 67.6 percent of the Counties growth. Due to the effect of the migrant population on the natural increase, this figure is probably on the low side.

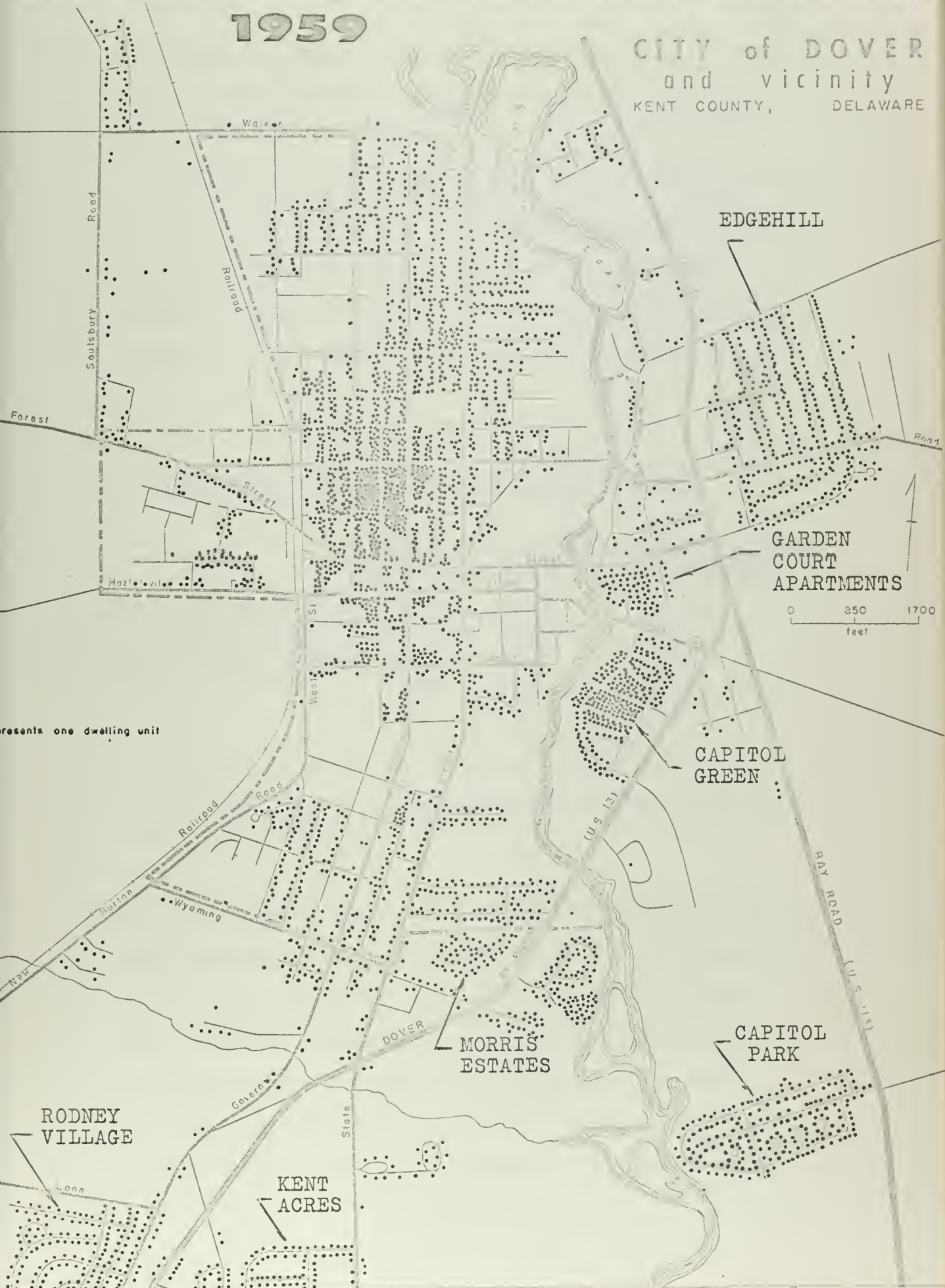
5. Population Distribution. Population distribution for the City of Dover and Vicinity in 1959 is given in Figure 7. Actually this does not represent population distribution as such, but is really a survey of residences. To clarify this point further, such areas as Capitol Green, Capitol Park and Morris Estates are suburban in nature. As a result they have attracted mainly young married couples with small children. In Central Dover however, in the old neighborhoods where large single family houses occupied by older families prevail, the population per dwelling unit will be less.

Several areas of the City stand out clearly; the relatively congested area North of Loockerman Street (the center of the figure) and the compact developments of Capitol Green and Capitol Park. Other interesting features of the population distribution are the void spaces such as that south of Water Street and along the St. Jones River. These voids are due to the presence of State government buildings and local institutions such as schools or churches, and parks and playgrounds. The important

POPULATION DISTRIBUTION

1959

CITY of DOVER
and vicinity
KENT COUNTY, DELAWARE



question from the basis of this thesis however is: "How has the presence of the Air Base affected this distribution?"

To determine the distribution of Air Force families in the City of Dover and in the surrounding communities, a tabulation was made of a sampling of the residences of approximately 50 percent of the military and civilian personnel attached to the Base. Table 9 summarizes the survey

Table 9

SUMMARY OF RESIDENCE SURVLY-DAFB PERSONNEL^a

	<u>Survey Total</u>	<u>Base Engr Total</u>	<u>Survey Sampling as a % of Total</u>
Total Military Off Base	1,790	4,201	44.6
Total Civilian Off Base	1,110	1,155	96.1
Total Mil in Gov't Hsg	1,170	1,255	93.3
Total Mil in Barracks	<u>528</u>	<u>3,342</u>	<u>15.8</u>
	4,598	9,953	46.3

^aDetail data are in Appendix A, Table A-4.

Source: Office of Information, 1607th Air Transport Wg(H) MATS, Dover Air Force Base.

totals in four main categories, and shows what percentage of total residences in each category the sample represents. In the "civilian off-base" and "Military in Government Housing" categories excellent correlation between the sample and the actual figures was obtained. In these categories the sample covered 96.1 percent and 93.3 percent of the total residences involved. In the category

of "military in barracks" a very low correlation was obtained. However since the number living in the barracks is known correlation in this category was not important.

The main reason for the sampling was to determine if possible the location of the off-base military families - the "migrant military" of the surrounding communities. However since the sample covered less than fifty percent of the families residing off-base limitations are immediately introduced. For instance in Table A-4 (Appendix A) a total survey result of 158 is found for Capitol Park. If the military residences found in the survey were doubled in order to compensate for the 44.6 percent sample and this result, added to the civilian survey result a total of 290 would be obtained. However a quick check of Figure 7 shows only 197 residences in this development. Therefore in this instance a high correlation is found between the actual survey result and the total number of military families living in Capitol Park.

Another limitation of the survey results is in the total for the City of Dover. The addresses in the survey listed R.F.D. numbers as Dover, Delaware. Being unfamiliar with the area the author was forced to include these addresses in the Dover total. Therefore the Dover total not only includes those personnel distributed throughout the City, but also those living along the radial roads leading away from the City.

The survey does show however the extent of the

vast distribution of Base personnel, both military and civilian, throughout the entire peninsula. While the exact location of the families living off-base cannot be derived from the survey total it is felt that the distribution pattern set up by the survey results is valid. In order to arrive at the number of military personnel in each distance bracket in Table 7, the survey results were doubled. This then would give a total of about 90 percent which corresponds favorably with a "civilian off-base" figure of 96 percent.

Table 10

DISTANCE OF RESIDENCE FROM DAFB^a

<u>Zone</u>	<u>Distance (miles)</u>	<u>No of Mil</u>	<u>No of Civ</u>	<u>Total</u>	<u>% Mil</u>	<u>% Civ</u>
A	0- 1	4,597	0	4,597	100	--
B	1- 3	410	39	449	91.5	8.5
C	3- 6	2,268	492	2,760	82.0	18.0
D	6-10	340	67	407	83.7	16.3
E	10-15	204	156	360	56.6	43.4
F	15-20	114	153	267	42.8	57.2
G	20-25	22	45	67	33.	67.
H	25-50	40	146	186	21.5	78.5
I	50+	<u>17</u>	<u>12</u>	<u>29</u>	56.7	43.3
Total		8,012	1,110	9,122		

^aEstimated No. of Residences in each Distance Range Based on Actual No. of Civilian Residences in Survey and Twice the Actual Number of Military Residences in Survey.

Source: Appendix A - Table A-4. Residence Survey DAFB.

In Table 10, which includes a weighted summary of the survey results, several interesting factors concerning

the spatial distribution of personnel throughout the countryside appear. The first is the higher proportion of civilians living in those zones furthest from the base. Up to a distance of fifteen miles there are more military in each zone than civilian. However beyond that point there is a greater percentage of civilians in each zone. In the 25-50 mile category they comprise 78.5 percent of those connected with the Air Base residing in that area.

This is due to several reasons. The civilian worker can take his time about moving into the Dover Area. Commuting on the Delmarva Peninsula, south of Wilmington, is not a serious problem as the roads are good and the traffic light. So until a man finds a home which suits his needs he can commute with only a little additional inconvenience. Since housing has been a serious problem in the Dover area for the last ten years, many civilians are content to stay where they are until conditions improve.

The military on the other hand are forced to pull up stakes when transferred into the area, and since they have to move they move as close as possible to the Base. Even deducting those living on the Base from the total, the survey shows that 88 percent of the military families live within ten miles of the base. A comparable figure for the civilian workers indicated that only 47 percent live within ten miles of the Base.

One additional factor which keeps the local civilians at their original place of residence is that many of

them are ex-farmers who still retain a part of their farming in off-hours. Many of these are farmers whose land was marginal in the first place, and the coming of the Air Base was a boon for them. At any rate they do tend to retain their original homes even if it means a journey of twenty-five miles or more each day.

The distribution of personnel while concentrated in the Dover Area, does however cover a very large total area. Even with a heavy distribution in the Dover Area another problem is generated - that of "journey-to-work" traffic. This is aggravated by the fact that there is no local public bus service and all travel to and from the Base is by automobile, except for those residing in the barracks. With the extensive distribution shown, it is not surprising that the traffic on U.S. 113 (Map #2-G9) outside of the Air Base has increased sevenfold in the last ten years.

C. Ecology

1. The Original Plan. The original plan for the town of Dover, as set forth in the decree of William Penn, called for the laying out of

one high street one hundred and fifty feet wide, and two back streets each sixty-six feet broad, to run from ye water side throughout, and one cross street one hundred and fifty feet broad where ye high road crosseth ye said Town land.¹⁵

This original plan is still evident in Dover today in the area surrounding "the Green" (Map #2-4D). The site of the town was picked principally because of its central location in Kent County, its position along the "King's Highway" and its access to a waterway - in those days one of the principal means of transportation.

By 1740 the town had extended its built-up limits to include North and South St. as its boundaries. Its center was the Court House Square, laid out by Penn's decree, and bordered by "a court house and jail, two taverns and several private homes."¹⁶ The area is indicated on Map #2, together with the built-up limits of Dover at various stages during its history.

At the time of the Civil War, Dover had increased its built-up area sixfold. However at this time two

¹⁵Scharf, J.T., op. cit., p. 1042.

¹⁶deValinger, L. and Shaw, V.E. (Editors), Ridgely Family Letters 1742-1899, (Milford, Delaware: Milford Chronicle Publishing Co., 1948), I, 19.

factors were beginning to play an important part in the shaping of the City. These were the railroad to the West and the river to the East. Even at this early date in its history, we can see the extending of the boundaries principally along a north-south axis. The persistence of the original gridiron plan in shaping the street pattern is also evident in the plan of the City today (See Map #2).

2. Recent Growth. By the beginning of World War II Dover had continued its expansion along its long axis. No developments of any size are to be found to the east of the St. Jones River at that time. The land surrounding the city was top-grade farmland, especially to the South.¹⁷ This is the area undergoing intensive development today.

Recent growth (1952-1962) has practically all taken place outside the city limits, except for two small areas in the southwest and northwest corners. The principal subdivisions, with the exception of Morris Estates, have all been built since the reactivation of the Air Base. The Rodney Village area and the Edgehill area with their accompanying shopping centers seem to be the two centers of most recent development. As mentioned previously while the Air Base has played an important role in shifting expansion to the south, the presence of U.S. Route 13 (Map #2, C-7) has shaped the pattern of this expansion. Except

¹⁷Bausman, R.O., Land Utilization in Kent County, Delaware, (University of Delaware Agricultural Experiment Station, Newark, Delaware, Bulletin No. 224, April, 1940), passim.

for Capitol Park, no development has been built to specifically cater to the needs of Air Force personnel. However it must also be stated that the construction of the 1,250 units of government housing at the Air Base in the last five years has had a pronounced effect on the growth of Dover; especially as to its expansion to the South.

Why did Dover not expand to the West? To live "on the wrong side of the tracks" in Dover is apparently not a trite expression. The area to the west of the tracks has been a negro quarter since the Civil War. Although some residential development has taken place along the radials further to the West, this area has done much to reinforce the boundary caused by the railroad. Today this area is scheduled for an Urban Renewal project, and thus in time this section of the City may have its historical role changed.

3. Land Use. A plan showing existing land use is shown in Figure 8. From this plan several functional areas of the City can easily be located. The darker portion in the center indicates the commercial district along Loockerman St. To the south and east of this is the location of the State Government buildings. To the North is the principal residential area within the City limits. The area along the railroad tracks is mainly used by the industries located in Dover.

Of particular interest however, is the "strip development" which has taken place along the Dover By-Pass

CITY OF DOVER

KENT COUNTY, DELAWARE

EXISTING LAND USE

PREPARED BY
RAYMOND B. MAY ASSOCIATES PLANNING & URBAN REFORM CONSULTANTS - PLEASANTVILLE, NEW YORK 1959



which lies to the east of the City. Practically all of the development along this road has occurred within the last ten years. Much of the land use along this transportation route has been caused by the influx of military personnel into the area. While the townspeople and the farmers who came into town on weekends were used to the congestion around Loockerman St., the military personnel wanted facilities where they could drive up and park. This has tended to cause a shift in the retail business of Dover to the periphery, although this is a phenomena which is occurring in many cities.

Unfortunately no land use study has been made of Kent County since 1939. However by comparison of aerial photographs the Army Corps of Engineers was able to determine the following about the Dover area in 1954:

An area of approximately 9,600 acres covered the farthest extent of land use change. Within this area, 2,704 acres of cropland and 48 acres of pasture had changed to nonfarm use between 1938 and 1954. The air base accounted for 82 percent of this, urban growth for 15 percent, and roads and borrow pits for the remaining 3 percent. Nearly all of this area formerly was good, well-drained, fertile land suitable for irrigation cropping.¹⁸

However in 1954, when the aerial photographs used by the Corps in their evaluation were taken, the Air Force Base's influence was just beginning to be felt. At that time the present location of government housing was being used as a borrow pit. Rodney Village and Kent Acres were still open farmland. Most of the strip development north

¹⁸U.S. Army Corps of Engineers, Delaware River Basin Report; Appendix K, "Use and Management of Land and Cover Resources;" 1960, p. 82.

and south of the City was non-existent.¹⁹

Table 11 indicates the use of land in Kent County. Of particular importance are the two areas for urban use and governmental use. These areas now comprise ten percent of the total land use in the County. In 1939 they comprised only about one percent of the land use of the County.²⁰ Of even greater importance is that most of the land to the south of Dover was top-grade farmland and it is this land which is being used by housing developments today. In this respect we may conclude that while the land use change, caused by the Air Base, has not been great, it was mainly the most productive land which was involved in the change.

Along U.S. Route 113 between the Air Base and Dover only minor change has been experienced (See Map #2-G9). Directly across from the main gate of the base is a small commercial center consisting of several restaurants, a food store and a gas station. North of the Base along Route 113 we find only a large trailer camp, six gas stations and the

¹⁹Aerial photographs of Kent County taken under the sponsorship of the U.S. Department of Agriculture are held in the office of Mr. Frederick T. Mott, Soil Conservationist, 313 South Governors Avenue, Dover. There are large scale photos for both 1948 and 1954 available. Although not available at the time of the author's visit to Dover, a new series of aerial photographs was taken in November 1961. A small scale composite photo of the new series was available which had sufficient detail to permit observation of major changes in the built-up area around Dover from 1954 to 1961.

²⁰Bausman, R.O., op. cit., p. 94.

Table 11

LAND USE IN KENT COUNTY, 1958-59

<u>Land Use</u>	<u>Acres</u>	<u>Percentage of Total Land Area</u>
Urban:		
Incorporated areas	6,150	2
Subdivisions	3,053	1
Industrial sites	<u>416</u>	<u>*</u>
	9,619	3
Agricultural:		
Cropland	175,312	46
Pasture	3,825	1
Farm woodland	55,774	15
Farmsteads, roads, wasteland	<u>17,023</u>	<u>4</u>
	251,934	66
Undeveloped:		
Nonfarm woodland	19,326	5
Marshland	<u>46,707</u>	<u>12</u>
	66,033	17
Other:		
Government and civic areas	22,074	6
Highways	7,955	2
Miscellaneous	<u>23,185</u>	<u>6</u>
	<u>53,214</u>	<u>14</u>
Total	380,800	100

Source: "Land Use in Delaware," Division of Urban Affairs and Agricultural Experiment Station, University of Delaware, Circular No. 33, February 1962, p. 6.

Capitol Park development. Again it is the poorer land and less strategic location which has put this location at a disadvantage to frontages along Rt. 13.

THE UNIVERSITY OF CHICAGO
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D. Economy

1. Labor Force, Employment and Unemployment.

During the past ten years there has been considerable change in the composition of the labor force in Kent County, other than that caused by the addition of seven thousand servicemen. Unfortunately 1960 Census statistics concerning labor force composition are not yet available for the City of Dover. It is not believed that the composition of its civilian labor force will have changed very much. However those in the armed services, which totaled only four in 1950, will certainly represent a sizeable proportion of the total labor force in the 1960 enumeration.

In 1950 the male labor force residing within Dover comprised 15.6 percent of the Kent County total (Table 12). However this included 32 percent of the professional and technical workers and 28.6 percent of the non-farm managers, proprietors and officials of the County. It is also noted that 30 percent of the male labor force engaged in public administration in the County lived in Dover, as well as 23 percent of those engaged in wholesale and retail trade. The above figures are indicative of Dover's role as the governmental and trade center of the County.

When looking at the composition of the Kent County labor force for 1950 and 1960 in Table 12, two major changes are evident: 1) The large increase (77.5 percent) in the female population of the County's labor force

the following conditions are satisfied:

- (i) \mathcal{A} is a subalgebra of \mathcal{B} and \mathcal{B} is a subalgebra of \mathcal{C} .
- (ii) \mathcal{A} is a subalgebra of \mathcal{B} and \mathcal{B} is a subalgebra of \mathcal{C} .
- (iii) \mathcal{A} is a subalgebra of \mathcal{B} and \mathcal{B} is a subalgebra of \mathcal{C} .
- (iv) \mathcal{A} is a subalgebra of \mathcal{B} and \mathcal{B} is a subalgebra of \mathcal{C} .
- (v) \mathcal{A} is a subalgebra of \mathcal{B} and \mathcal{B} is a subalgebra of \mathcal{C} .

It is clear that (i) and (ii) are satisfied. It is also clear that (iii) and (iv) are satisfied. It is also clear that (v) is satisfied.

Therefore, the conditions (i) through (v) are satisfied. It follows that the conditions (i) through (v) are satisfied.

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Therefore, the conditions (i) through (v) are satisfied. It follows that the conditions (i) through (v) are satisfied.

Table 12

SELECTED ECONOMIC CHARACTERISTICS OF THE POPULATION

BY SEX FOR DOVER, 1950 AND KENT COUNTY, 1950 AND 1960

	Dover		Kent County	
	M	F	M	F
	1950	1950	1960	1960
Labor Force	1,733	1,088	11,086	4,421
Civ Labor Force	1,729	1,088	11,058	4,418
Armed Services	4	--	28	3
Unemployed	52	29	275	133
% of Civ. Labor Force Unemployed	3%	2.7%	2.5%	3%
				2.6%
				4.3%
Maj. Occup. Group (total)	1,677	1,059	10,783	4,285
Prof. Tech. and Kindred Workers	187	119	581	403
Farmers and Farm Mgrs.	19	--	1,766	28
Non-Farm Managers, Officials and Props.	286	41	1,001	171
Clerical and Kindred Workers	111	275	394	890
Sales Workers	128	62	560	278
Craftsmen, Formen and Kindred Workers	236	20	1,814	70
Industry Groups (total)	1,677	1,059	10,783	4,285
Agriculture	67	1	2,980	127
Manufacturing	316	269	2,125	1,495
Wholesale and Retail	404	173	1,943	747
Professional and Related Services	123	187	116	74
Public Admin.	107	61	359	197
				1,683
				2,041
				4,310
				747
				74
				197

Source: U.S. Bureau of the Census
 Census of Population: 1950 and 1960
 General Social Characteristics
 Delaware Final Report PC(1)-9C.



during the decade. In 1960 female workers represented 37 percent of the total civilian labor force of the County as compared to 28 percent in 1950. In the State as a whole female workers represented 32 percent of the labor force in 1960; 2) The decreasing number of persons engaged in agriculture (3,107 in 1950 vs. 2,041 in 1960) and the two-fold increase in professional and technical workers (from 984 to 1,908). The decrease in farm workers was indicative of a statewide decrease of 43 percent during the decade. This is mainly due to a shift to machine farming and gradual consumption of farmland by suburbanization.

The great increase in the female labor force population can in some measure be attributed to the young service families in the area.²¹ Many of the service wives, especially of the young airmen, find it necessary to work in order to supplement their husband's income. Another interesting item concerning the female labor market is that sufficient positions have been created in the area to reach a percentage of employment comparable to the 1950 level, even with the greatly increased work force. The influence of the service wives in the labor force is again evident in the fact that during the decade civilian male employment had only increased by 2,114 while female employment increased by 3,423.

²¹No statistical data are available as to the number of service wives actually employed in the Dover Area. However the personnel office of International Latex estimates that one-third of its 2,600 employees are service wives.

In the female labor market the greatest change was in the clerical and kindred workers category, where employment increased by 1,245 positions or 140 percent over the 1950 level. Of this number approximately 200 can be accounted for as civil service employees at the Air Base (Table 14, pages 67). However, this means that the demand for this type of worker has been spread throughout the economy, as the Air Forces' needs are only a fraction of the total. Other substantial gains in female employment were realized by those in professional and technical work (83 percent increase) and sales workers (78 percent increase).

A more detailed picture of changes in the labor force composition in the past decade can be obtained from Table 13. This table shows the number of covered employees in various industrial categories during the first quarter of the years 1951 through 1961.²² In practically all categories covered in this table significant changes have occurred during the ten year period. The greatest gain in employment during the period was in the transportation, communication and public utilities industry in which employment increased 325 percent. The sudden rise in

²²Bureau of Economic and Business Research, University of Delaware, The Delaware Economy 1939-1958, (Newark, Delaware, University of Delaware, 1961), p. 21. "It should be noted that the term 'covered employment' applies to those industries which are subject to the Unemployment Compensation Laws of Delaware. Principal exclusions are agricultural, governmental and railroad workers."

Table 13

MARCH EMPLOYMENT AND 1ST QTR WAGES IN COVERED EMPLOYMENTKENT COUNTY CLASSIFIED BY MAJOR INDUSTRY

<u>1951-1961</u>						
	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Agriculture (01-09)	# Emp. \$ 160 95,533.	203 83,018	N O T	208 119,728	169 99,182	180 119,043
Mining (10-14)	2 1,060	1 820	C O M P U	6 2,913	17 7,898	17 6,891
Construction (15-17)	473 262,558	509 306,757	T E D	595 471,824	786 584,483	886 669,671
Manufacturing (19-39)	5,099 2,978,560	4,950 3,026,092		4,229 2,754,678	3,993 2,751,931	4,178 3,058,893
Trans. Comm & Public Utilities (40-49)	385 263,544	424 314,598	T H I S	559 478,417	601 444,535	584 482,186
Trade-Wholesale and Retail (50-59)	2,432 1,234,444	2,446 1,444,586		2,726 1,713,659	2,928 1,901,900	3,344 2,286,595
Finance, Ins. and Real Estate (60-67)	292 217,799	310 200,645	Y E A R	323 241,622	346 267,962	369 308,442
Service (70-89)	504 NA	528 286,242		707 446,471	600 330,547	690 409,645
Establishments N.E.C.-99	-- --	-- --		-- --	-- --	-- --
Total	9,347 5,313,514	9,333 5,636,791		9,353 6,229,312	9,440 6,388,438	10,253 7,341,370
Source: State of Delaware Employment Security Commission Tabulation.						

Source: State of Delaware Employment Security Commission Tabulation.

Table 13 (Continued)

MARCH EMPLOYMENT AND 1ST QTR WAGES IN COVERED EMPLOYMENTKENT COUNTY CLASSIFIED BY MAJOR INDUSTRY1951-1961

	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
Agriculture (01-09)	#Emp. \$ 222 115,079	266 137,965	176 102,161	130 65,796	116 74,287
Mining (10-14)	10 8,482	15 9,819	22 15,274	7 8,331	11 9,308
Construction (15-17)	717 613,346	1,173 1,067,162	1,239 1,197,884	626 613,459	879 849,196
Manufacturing (19-39)	4,285 3,376,647	4,002 3,513,151	3,872 3,683,053	4,696 4,349,446	4,081 4,069,363
Trans. Comm & Public Utilities (40-49)	706 655,260	1,720 1,328,465	1,776 2,296,827	1,759 2,213,345	1,644 2,666,670
Trade-Wholesale and Retail (50-59)	3,483 2,590,005	3,699 2,924,087	3,758 3,069,229	3,515 2,759,279	3,512 2,831,633
Finance, Ins. and Real Estate (60-67)	359 328,771	375 256,348	385 397,853	387 367,289	396 400,197
Service (70-89)	671 425,056	696 447,035	741 493,320	802 533,252	845 604,815
Establishments N.E.C.-99	-- --	-- --	-- --	4 4,479	-- --
Total	10,453 8,112,646	11,946 9,784,032	11,969 11,255,601	11,926 10,914,674	11,484 11,105,469

employment from 1957 to 1958 as seen in Figure 9, was due to the awarding of an Air Force contract to an electrical company for on-site maintenance of aircraft engines. The contractor employed approximately a thousand men, although this has been considerably reduced in the past year.

The three groups (1. wholesale and retail trade, 2. finance, insurance and real estate, and 3. service) which reflect the demands of an expanding population show a steady and consistent growth throughout the period. The two categories with the greatest variations in employment are manufacturing and construction.

In the first half of the period covered manufacturing showed a 20 percent decline in the number of employees. This was due principally to the closing down of numerous small canneries.²³ It should also be noted that employment in manufacturing industries, which accounted for 55 percent of the total in 1951, had dropped to 35 percent by 1961. This decrease in manufacturing with an increase in sales and services seems to indicate an increased dependence of the local economy on the Air Base. However, this is not as serious as the figures might indicate. The growing importance of Dover as a regional shopping center tends to stabilize the overall economy. Also there has been considerable change in the manufacturing industry from seasonal employment such as the canneries to permanent

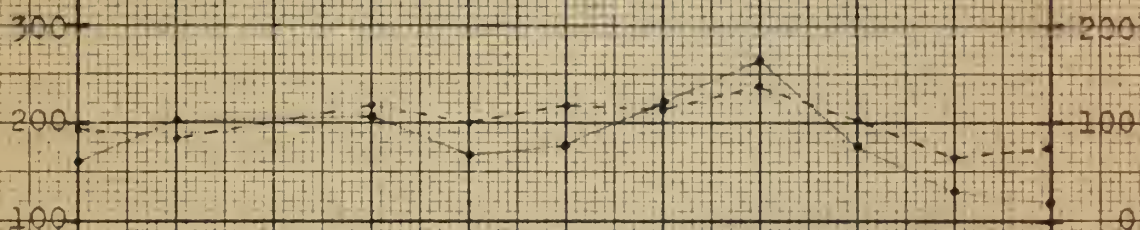
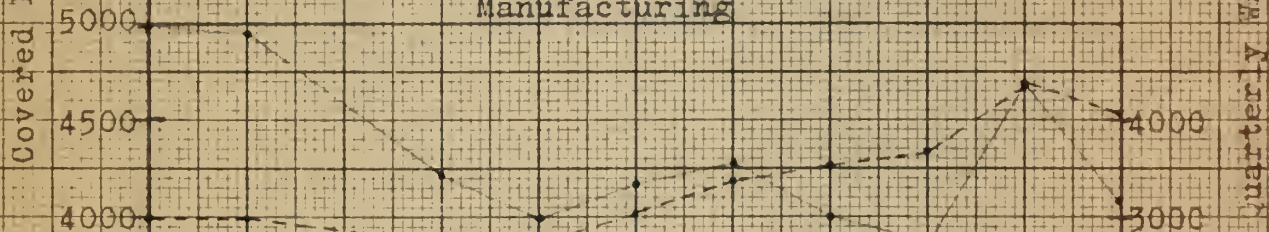
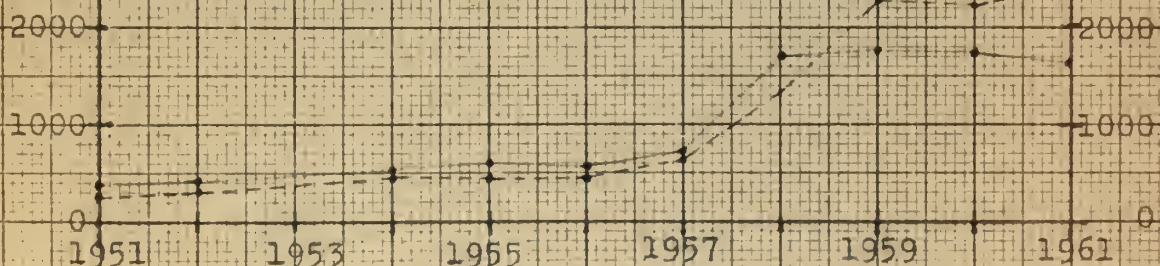
²³Raymond and May, op. cit., I, 41.

Figure 9, Part I

MARCH EMPLOYMENT AND 1ST QTR WAGESIN COVERED EMPLOYMENTSELECTED INDUSTRIES, KENT COUNTY1951-1961

Note: See Table 13 for Detailed Data

Key — Employees
 --- Wages

AgricultureConstructionManufacturingTrans, Comm. and Public Utilities

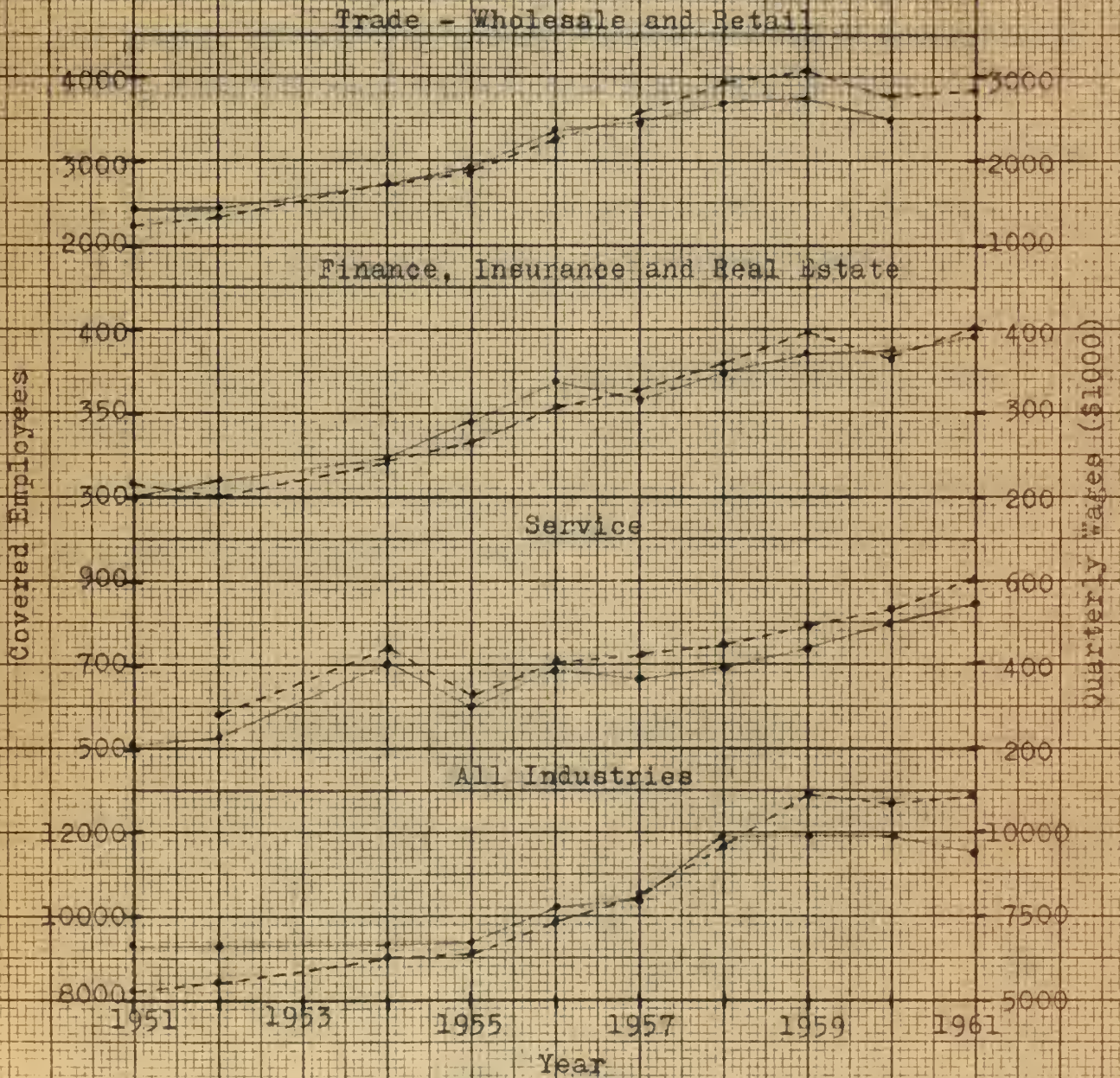
Year



Figure 9, Part II
MARCH EMPLOYMENT AND 1ST QTR WAGES
IN COVERED EMPLOYMENT
SELECTED INDUSTRIES, KENT COUNTY
1951-1961

Note: See Table 13 for Detailed Data

Key — Employees
 --- Wages





employment in the durable and non-durable goods fields. For instance, in the past ten years International Latex has increased its work force from 1,300 to 2,600 persons.

Construction, as mentioned above, has been subject to considerable fluctuation. Unfortunately the figures in the table do not accurately portray the situation because much of the big construction projects at the Air Base have been contracted with out-of-state firms whose employees are not shown. However, the base housing contracts accomplished during 1958 and 1959 are clearly indicated in the employment levels for those years (Figure 9). Construction during the second quarter of 1958 reached a high in employment of 1,520 while the low during the ten year period was 473 in 1951.

Table 13 does not include the civil service employees working directly for the Air Force. Table 14, Civilian Personnel Summary, shows the number of employees by grade as of March of 1962.

Table 14

CIVILIAN PERSONNEL SUMMARY-DAFB

March, 1962

<u>Blue Collar Workers</u>		<u>White Collar Workers</u>	
Unskilled (Janitors etc)	27	GS-5 and below	
Semiskilled (Fork lift operator, Warehousemen)	127	(Sec'y, Clerk, Typist)	210
Skilled (Aircraft Machinist)	412	GS-5 and above	
Leadingmen (Aircraft Foremen)	110	Semi-Prof. and Prof.	153
Supervisors	108	Sub-Total	<u>363</u>
Sub-Total	<u>784</u>	Total (Col 1 & Col 2)	1,147

Source: Civilian Personnel Officer, DAFB.

Approximately 50 percent of the civilian employees are related to the aircraft machinist trades. For the most part they must be recruited out of the Dover area or from retiring Air Force personnel at the Base. As there is no local aircraft industry, these employees would have to relocate should the Base cease operations.

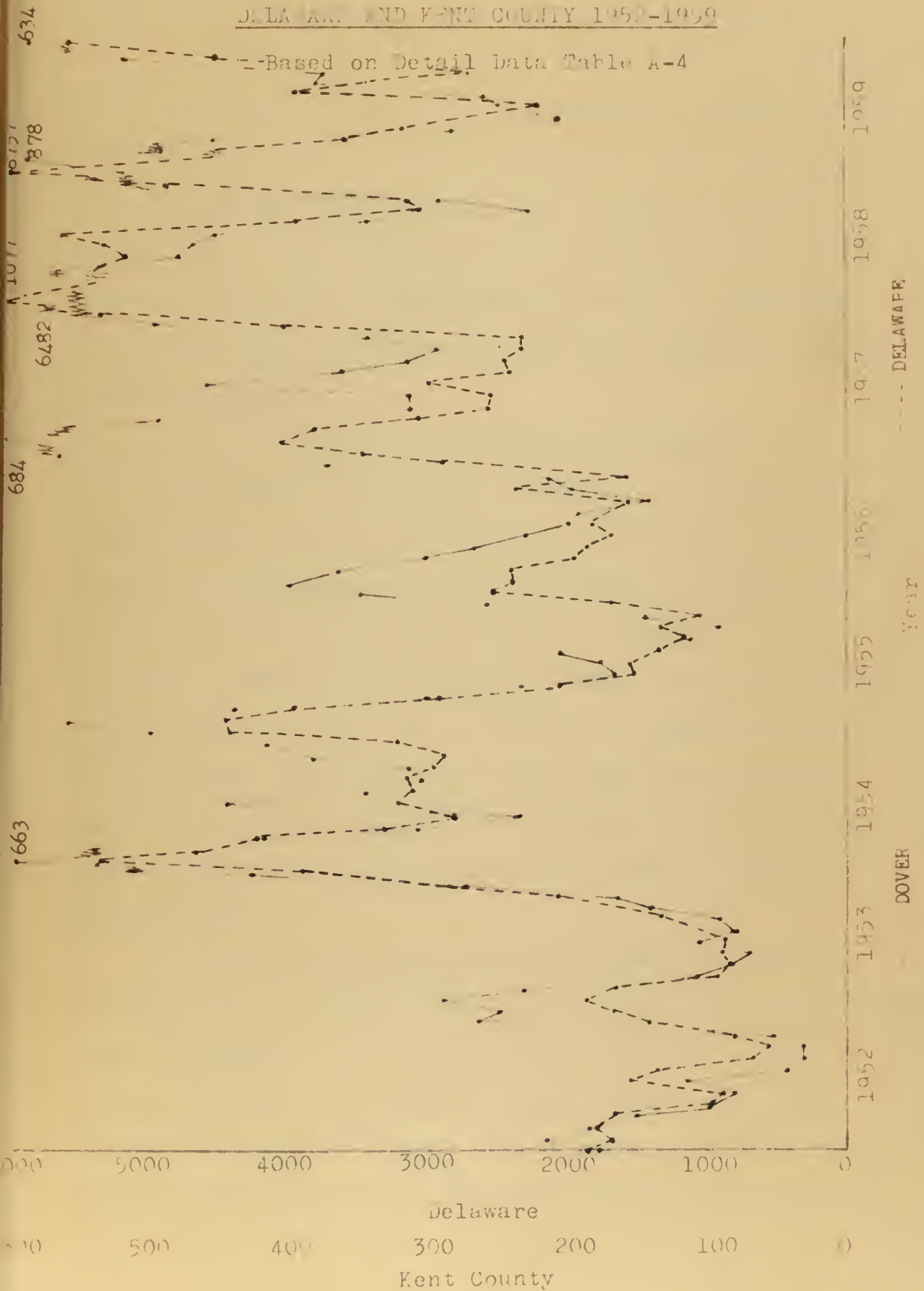
Unemployment during the period 1952-1959 is reflected in Figure 9A for both Kent County and the State. The variations in Kent County are much greater than for the State as a whole due to the seasonal employment in the food processing industry. The Air Base having a relatively stable work force does not seem to have had any influence on the fluctuation of unemployment in the area.

Total quarterly wages for the periods covered are also given in Table 13. It is noted that although the total number of employees increased 23 percent the total wages more than doubled from 1951 to 1961. Most significant gains were in the construction, manufacturing and transportation - communication categories, where average quarterly salaries increased 84 percent, 69 percent and 150 percent respectively. The latter increase is indicative of the large number of highly-priced aircraft mechanics working at the Air Base for the maintenance contractor. Annual wages at the Air Base for both military and civilian personnel in 1961 were \$16,473,000 and \$5,249,000 respectively. The wages of those employed in the covered employment categories totaled \$47,111,809. Therefore it is seen that the Air Base payroll

Figure 9A

COVERED UNEMPLOYMENTDELAWARE AND KENT COUNTY 1952-1959

Based on Detail Data Table A-4





accounts for approximately one third of the total wages in the County, exclusive of State Government employees.

2. Wholesale and Retail Trade. Data on wholesale and retail trade clearly shows a pattern of growth during the period of the Air Base's operation. The last Census of Business was made in 1958, and although the trends of growth may not have been as strong during the last four years (1958-1962), the continued increase in employment and higher wages indicated in Table 13. would predicate continued growth.

It is probably in the field of wholesale and retail trade that the presence of the Air Force has most significantly affected the growth of the Dover area. As the housing developments have surrounded the City, they have incorporated shopping centers as part of their development, and this has tended to "spill over" the retail trade outside of the City. Without the demand for housing for Air Force personnel this shift might never have occurred and the Lockerman Street business district might have retained its dominance over the retail business of Kent County.

Before discussing trade developments since the reactivation of the Air Base let us look at the World War II "Sales Summary" for the Dover area. Table 15, based on data from "Sales Management" magazine shows the growth pattern during that period. It is noted that the retail sales during the period 1940-1946 for Dover increased by

SALES SUMMARY, KENT COUNTY AND DELAWARE

(1940-1946)*

	Population in 1000's ^a		Retail Sales			Effective Buying Income				Farm Dollars (1000)
	Total	# of Fam. (Est)	Dollars (1000)	% of State	% of USA	Dollars (1000's)	% of State	% of USA	Per Family (Dollars)	
1940 (Kent Co. Del.)	34.4 266.5	9.7 70.6	11,955 ^b 110,052	10.4 --	.028 .262	22,935 197,800	10.8 --	.031 .267	2,371 2,803	N.A. N.A.
1942 (Kent Co. Del.)	31.3 275.5	N.A. ^c N.A.	25,142 189,643	13.26 --	.045 .336	30,556 313,355	9.75 --	.027 .275	N.A. N.A.	10,590 52,355
1944 (Kent Co. Del.)	30.3 273.6	9.2 78.4	28,050 250,074	12.19 --	.041 .363	48,174 422,042	11.42 --	.032 .284	5,236 5,383	17,350 53,314
1946 (Kent Co. Del.)	33.8 299.4	10.3 82.8	33,210 284,181	11.64 --	.034 .258	41,670 426,491	9.77 --	.021 .215	4,050 5,183	20,997 103,731

^aIncludes Civilian Population Only.^bBased on 1939 "Census of Business" Report.^cNA - Indicates Data Not Available*Data from Sales Management - "Annual Survey of Buying Power,"
April 10, 1941, May 10, 1943, May 15, 1945 and May, 1947

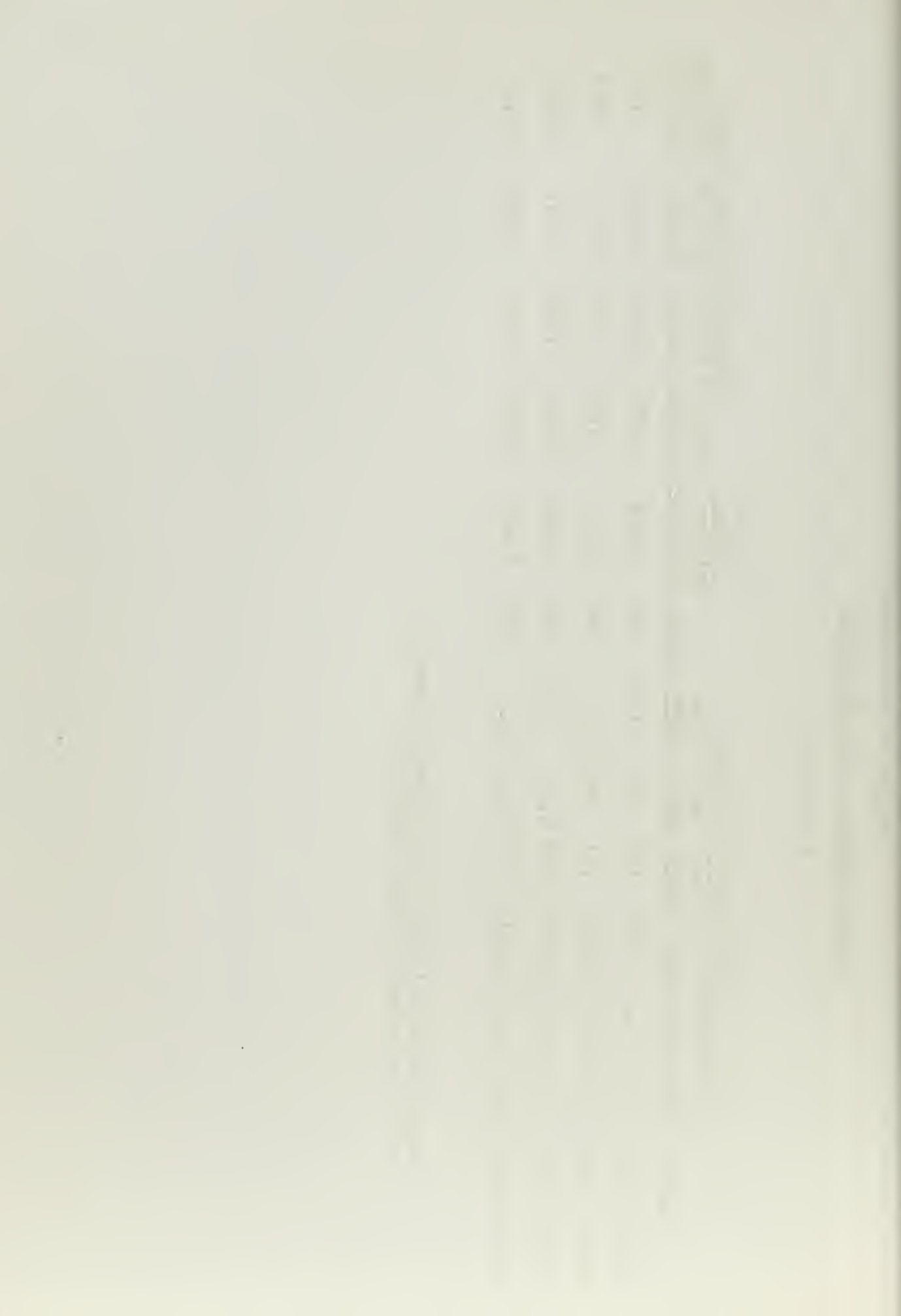
Table 15 (Continued)

SALES SUMMARY, CITY OF DOVER

(1940-1946)

	Wholesale													
	<u>Total</u>	Retail Sales (1000's Dollars)							<u>Drugs</u>	Sales		Effective		<u>Buying Income</u>
		<u>% of State</u>	<u>USA</u>	<u>% of</u>	<u>Food</u>	<u>Gen Mdse</u>	<u>Ap- parel</u>	<u>Bldg. Hdw</u>		<u>Dollars (1000) Est)</u>	<u>Dollars % of State</u>	<u>Per Fam Dollars</u>		
													<u>Per Cap</u>	
1940 ^a	4,920	4.47	N.A.	947	419	277	127	168	2,354	4,281	2.16	2.617	776	
1942	8,480	4.52	.016	1,630	721	482	N.A.	290	N.A.	5,248	1.67	N.A.	954	
1944	14,239	5.70	.021	2,476	1,092	N.A.	170	340	5,720	8,031	1.92	N.A.	1,460	
1946	16,948	5.97	.017	2,781	1,113	N.A.	N.A.	434	7,406	8,208	2.02	2.896	N.A.	

^aBased on 1939 (Census of Business) Report.
N.A.--Indicates Data Not Available.



245 percent. It also increased its percentage of the State's sales from 4.47 percent to 5.97 percent. However it is the rapid rate of growth from 1942 to 1944 that indicates the effect of the Air Base. During that period the sale of both food and general merchandise increased by 51 percent.

At the same time, the civilian population of Kent County was estimated to have been dropping, while retail sales in the County went up by three million dollars from 1942 to 1944. Dover's sales during the same period rose 5.7 million dollars. This indicates an intensification of the retail sales in the City during the war.

This pattern bears out what was described as the effect of the Base on the City during the War. For all practical purposes very few families of soldiers (at that time the Army Air Force) moved into the area because of lack of housing and short stays of military at the Base (see page 19). However, Dover became a weekend center of activity for the soldiers on furlough and their visitors. As a result many married men rented rooms for the weekend to be with their wives. Restaurants did a booming business, but were limited because of food rationing. At any rate the major impact was in food and general merchandise not available at the Base PX.²⁴

²⁴The bulk of the author's information concerning the Dover scene during World War II was gained in an interview with Mr. H.C. McSherry, a newspaper reporter in Dover at that time.

During the War, Dover was able to increase its percentage of retail sales in the County from 41 percent in 1940 to 54 percent in 1946. However, looking at Table 16A, it appears that by 1948, Dover's percentage of the retail sales in the County had dropped off to 31.6 percent. This is most probably due to the greater accuracy of the census figures than to any actual shift in retail trade patterns. From 1948 to 1954, Dover's retail sales increased 85.4 percent, while that of Kent County increased only 37.5 percent (Table 16B). By 1958 the "spill over" effect mentioned above had begun to take place and Dover's sales increased only 17.4 percent, while that in the County increased 25 percent. In this manner Dover's share of the County trade was reduced from 58.5 percent to 40.6 percent in the four-year period, 1954-1958. However, both Dover's and the County's sales grew at a faster rate than the State in practically all merchandise groups as can be noted in Table 16B.

Patterns showing concentration of various merchandise groups inside the City, while others have shifted outside, are evident from the Tables. Dover's growth in apparel, food and general merchandise sales illustrates its importance as a downtown shopping area. For instance, the City with 18.5 percent of the food outlets in the County accounts for 49.2 percent of the sales. In the general merchandise category its stores represent only 28.2 percent of those in the County, and yet they do 77 percent of the business.

Table 16A

RETAIL SALES: DOVER AND KENT COUNTY, 1948, 1954, 1958

	<u>Dover</u>		No. of Est.	<u>Kent County</u>		No of Est.
	<u>1948</u> (Thousands of Dollars)	<u>1954</u> (Thousands of Dollars)		<u>1948</u> (Thousands of Dollars)	<u>1954</u> (Thousands of Dollars)	
Food	2,493	4,174	(24)	7,608	9,791	(130)
Eating and Drinking	577	1,150	(29)	2,097	2,988	(110)
General Merchandise	1,221	4,422	(11)	2,145	6,169	(39)
Apparel	1,092	1,364	(33)	1,545	2,021	(53)
Furniture	740	1,232	(14)	1,516	3,072	(42)
Automobiles	4,987	6,828	(10)	9,534	14,651	(41)
Gasoline	231	1,033	(15)	1,819	3,222	(98)
Lumber and Building Supplies	2,389	1,626	(7)	5,865	4,919	(42)
Drug Stores	525	-	(8)	981	1,438	(18)
Other in-Stores	1,426	5,465	(40)	15,044	17,616	(128)
Other non-Stores	-	-		-	1,863	
Total	15,224	28,215		48,154	65,431	
					81,656	

*U.S. Census of Business, from Sales Management, "Survey of Buying Power: 1958,"
Mag. 1959.

PERCENTAGE CHANGE IN RETAIL SALES, 1948-1954, 1954-1958,FOR DOVER, KENT COUNTY, AND THE STATE

Merchandise Groups	Percent Change 1948-1954		Percent Change 1954-1958	
	Dover	Kent County	Dover	Kent County
Food	67.5	28.7	73.5	50.2
Eating and Drinking	116.7	42.5	40.5	61.0
General Merchandise	262.0	185.7	36.5	27.3
Apparel	24.9	30.7	138.0	128.0
Furniture	66.5	102.7	43.5	10.6
Automobiles	37.0	53.7	-14.8	17.6
Gasoline	347.2	77.2	-21.7	60.0
Lumber & Bldg. Supp.	-31.9	-16.1	11.0	33.3
Drug Stores	-	46.6	-	40.2
Other in-Stores	283.2	17.1	-25.0	-12.6
Other non-Stores	-	-	-	-
Total	85.4	37.5	17.4	25.0
				15.3

Source: U.S. Bureau of the Census
 U.S. Census of Business: 1948, 1954 and 1958.
 Vol. II Part II, Retail Trade, Area Statistics
 Washington D.C., 1951, 1957 and 1961.

However in certain other groups the County has gained significantly. Most important have been its gains in the automobile and gasoline groups. The fact that Dover lost in retail sales in these categories and the County experienced considerable gains, is indicative of the relocation of these outlets to the strip developments taking place along the north and south radials emerging from the City.

A summary of selected services and wholesale trade are shown in Tables 17A and 17B respectively. In the service trades, noticable gains were seen in the auto and business services. However the major trend noted during this period is the increased volume of receipts per establishment, showing greater utilization of each establishment. This trend is confirmed when comparing Kent County totals with those of the State. While the percentage increase of establishments in Kent County was 21.3 percent, the total receipts increased by 78.5 percent. In the State with a comparable growth of 22.2 percent in number of establishments, the growth in total receipts was only 43.8 percent. Comparable statistics were not available for Dover.

Wholesale trade figures show a decrease in the County sales for the four year period of 16 percent. The City however increased its sales by 13.3, percent showing the growing importance of the City's wholesalers in the Dover trade area.

In 1960,²⁵ it was estimated that Dover's primary

²⁵Raymond and May, op. cit., I, p. 47.

Table 17A

SELECTED SERVICES SUMMARYKENT COUNTY, 1954 & 1958

	<u>1954</u>		<u>1958</u>		% Inc. No. of	% Inc.
	<u>Total</u>	<u>Receipt</u>	<u>Total</u>	<u>Receipt</u>	<u>Estab.</u>	<u>Receipts</u>
	<u>(No.)</u>	<u>(\$1000)</u>	<u>(No.)</u>	<u>(\$1000)</u>	<u>1954-58</u>	<u>1954-58</u>
Hotels, Motels						
Tourist Camps	19	492	24	800	26.3	62.5
Personal Services	125	1,323	145	2,101	16.0	58.9
Misc. Business						
Services	15	277	14	623	-6.7	+125.0
Auto Repair, Auto						
Services, Garages	18	434	32	1,137	78.0	162.0
Misc. Repair						
Services	35	295	44	613	25.7	108.0
Motion Pictures	7	247	6	D	-14.3	--
Amusement, Re-						
creation Services						
ex. Motion Pict.	35	676	43	D	22.8	--
Kent Co. Total	254	3,744	308	6,687	21.3	78.5
Delaware Total	1,851	47,194	2,262	67,772	22.2	43.8

(D) Withheld to avoid disclosure.

Source: U.S. Census of Business: 1958, Vol. VI,
Part 1.

Table 17B

WHOLESALE TRADE SUMMARYDOVER AND KENT COUNTY, 1954 & 1958

	<u>1954</u>		<u>1958</u>		<u>% inc</u>	<u>% inc</u>
	<u>Estabs</u>	<u>Sales</u>	<u>Estabs</u>	<u>Sales</u>	<u>Estabs</u>	<u>Sales</u>
	<u>(Number)</u>	<u>(\$1,000)</u>	<u>(Number)</u>	<u>(\$1,000)</u>	<u>1954-58</u>	<u>1954-58</u>
Dover	23	14,654	29	16,597	26.0	13.3
Kent Co.	62	39,548	76	33,226	22.6	-16.0

Source: U.S. Census of Business: 1958, Vol IV.

trade area included 6,000 families living within a radius of 3 to 5 miles from the City. This primary trade area population did not include the Air Force families (who have use of Commissary and Exchange facilities at the Base) and those living in communities such as Camden and Wyoming which have established retail facilities. It was estimated that the families in the primary trade area would make two-thirds of their retail purchases in Dover. However, it is probable that with the opening of the Rodney Village shopping center in November, 1960 the number of families stated above has decreased. There are now three main shopping centers outside the City limits. The Rodney Village center (Map #2-C7) has twenty stores. Along Route 13 are the Edgehill Shopping center (Map #2-D3) with eight stores and the Capitol shopping center (Map #2-D4) with six stores.

Dover and its outlying shopping centers also serve an extensive secondary trade area (Figure 1, page 8). Because of the availability of facilities and greater variety it is estimated that at least part (approximately 6 percent) of the shopping of the residents of this secondary area is done in the Dover area. The secondary trade area includes Kent County, the northern third of Sussex County and the Maryland Counties of Queen Anne, Talbot and Caroline. Because of the number of Air Force personnel living throughout the primary and secondary trade area, it is estimated that they contribute on the average much more than the 6 percent assigned to the secondary area residents.

However what this percentage actually is cannot be readily ascertained from the data available.

3. Industries. The section on employment (see page 59) gives an indication of the industrial situation in Kent County. Manufacturers, except for the International Latex Corporation, have consisted principally of those related to processing of food products. Table 18, which contains a list of manufacturers in and around Dover, together with their employment levels and items of manufacture, gives an accurate picture of industry in Dover. It is noted that there are only two companies with a work force of over 50 persons.

In the 1958 Census of Manufacturers, International Latex was listed as the only employer in Kent County with over 250 employees. Only ten establishments in Kent County employing more than one hundred employees were listed, and six of these were engaged in food processing.²⁶

The Dover area failed to grow as an industrial center principally because of the rapidly growing complex in the vicinity of Wilmington, which is slowly spreading out over the entire New Castle County. Much of the labor surplus from Kent County has historically drifted up to Wilmington and other industrial cities to the North.

One of the main reasons for the location of the Latex plant at Dover is the availability of a surplus

²⁶U.S. Census of Manufacturers: 1958, Volume I, Area Statistics, (Washington, D.C.: U.S. Government Printing Office, 1959) p. 94.

Table 18

MANUFACTURERS, EMPLOYEES AND PRODUCT
IN THE DOVER AREA-1960

Below is a list of manufacturers in the Dover Area. The number of employees and what they manufacture is listed below their name and address.

American-Marietta Co.	Foot of William St.	172 (b)
Artcraft Press, The	8 N. Governors Ave.	190 (a)
Capitol Sign Service	R.D. 1, Box 547	66 (a)
Diamond Cold Storage Co.	West North St.	116 (a)
Dover Coca-Cola Bottling Co.	Cherry St.	21 (a)
Dover Index Publishing Co.	11 North St.	190 (a)
Dover Litho-Printing Co.	N. duPont Highway	190 (a)
Dover Sand and Gravel Corp.	Lebanon Road	49-203 (a)
Frazier, M.A. Inc.	Silver Lake	18-48-203 (a)
Hartnett, M.A., Inc.	Railroad Ave. & Forest St.	18-149 (a)
International Latex Corp.	Playtex Park	69-201 (k)
Jackson, Chas. T., Inc.	DuPont Station	141-223 (a)
Jones, E.L. and Co., Inc.	Railroad Ave.	136 (a)
Nehi Bottling Co.	15 William St.	21 (a)
R & O Kitchen Cabinet Co.	Dupont Highway	26 (a)
Richardson & Robbins (Wm. Underwood)	King St.	27-30 (e)
Shore Construction Service, Inc.	772 E. Loockerman St.	8-48 (a)
Simmons Printing Co.	426 S. State St.	190 (a)
State Sentinel, The	56 the Green	190 (a)
Trio Tank Co.	Hazlettville Road	147 (a)
Wells Dental Laboratory	134 Upland Ave.	63 (a)
Wesley's Print Shop	315 Loockerman St.	190 (a)
West Dover Butcher Shop	Dover and Hazlettville Rd.	143 (a)

Number of Employees

(a) 25 or less	(e) 151 to 200	(i) 501 to 1,000
(b) 26 to 50	(f) 201 to 300	(j) 1,001 to 1,500
(c) 51 to 100	(g) 301 to 400	(k) 1,501 to 2,000
(d) 101 to 150	(h) 401 to 500	(l) 2,001 to 3,000

Table 18 (Continued)

MANUFACTURERS, EMPLOYEES AND PRODUCTIN THE DOVER AREA-1960What each Manufactures

- 8 - Asphalt
- 18 - Blocks, Building
- 21 - Bottling, Carbonated Beverages
- 26 - Cabinet Making
- 27 - Canning, Chicken Products
- 30 - Canning, Puddings
- 48 - Concrete Products
- 49 - Concrete - Ready-Mixed
- 63 - Dentures
- 66 - Displays, Advertising
- 69 - Drug Sundries
- 116 - Ice
- 136 - Machining, Contract
- 141 - Meat, Meal and Bone
- 143 - Meat Products
- 147 - Metallizing, Hot Spray
- 149 - Millwork
- 172 - Pipe, Concrete
- 190 - Printing, Letterpress and/or Lithography
- 201 - Rubber Products - Gloves, Women's and Children's
Apparel, etc.
- 203 - Sand and Gravel
- 223 - Tallow and Grease, Inedible

Source: Greater Dover Chamber of Commerce.

female labor force. Nearly two thirds of their employees are women (also see footnote page 60).²⁷ The company's busses fan out throughout the surrounding counties daily to bring the workers into Dover.

One industrial firm in the Dover area which has shown considerable growth during the past decade and which in turn reflects the overall growth of the community is the telephone industry. The steady growth in the number of line stations contained in the two exchanges serving the Dover area is shown in Table 19. The boundary of these two exchanges is indicated on Map #1. The Redfield exchange which includes Dover and the Air Base (including Base Housing) as well as a substantial area to the north of the City has had an increase of 220 percent in the number of line stations in the ten year period from 1951 to 1961. In a corresponding period the number of stations in the Myrtle exchange area which includes the Camden-Wyoming area has increased by 127 percent. The Redfield exchange area includes the major portion of the built-up area in "the Complex." The fact that this exchange area included the Base Housing meant the addition of 1,250 potential customers between 1958 and 1961 in this project alone.

The increased rate of growth after the opening of the Air Base in 1952 is readily seen in Figure 10. The growth is seen to have had a fairly constant rate since

²⁷Raymond and May, op. cit., I, 42.

Table 19

TELEPHONE LINE STATIONS IN DOVER AREA, 1950-1961^a

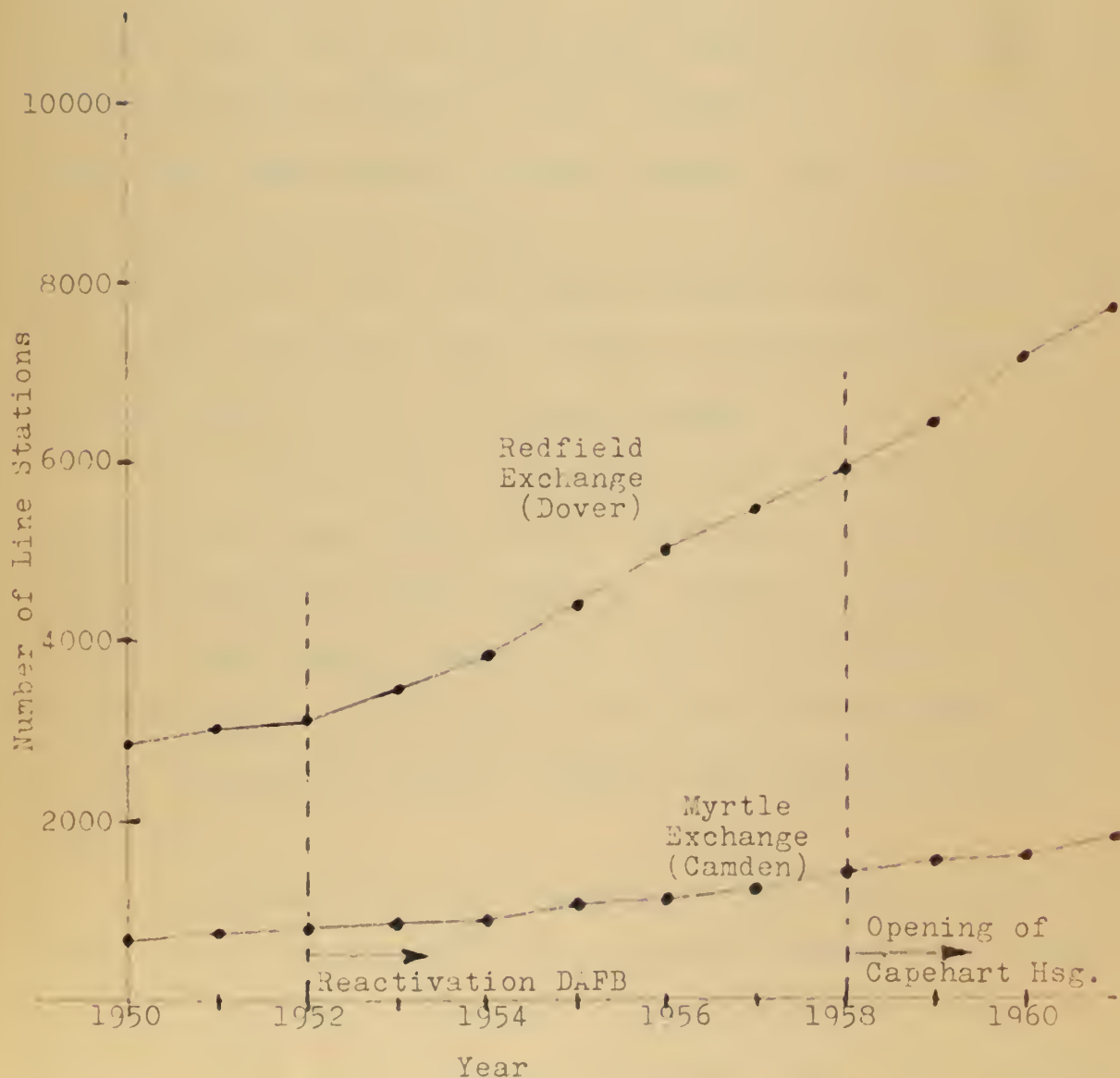
<u>Year</u>	<u>Redfield (Dover)</u>	<u>Myrtle (Camden-Wyoming)</u>
1950	2,834	738
1951	3,023	779
1952	3,144	797
1953	3,479	834
1954	3,826	915
1955	4,418	1,023
1956	5,011	1,128
1957	5,465	1,259
1958	5,894	1,421
1959	6,418	1,511
1960	7,183	1,593
1961	7,699	1,768

^aA line station represents a single installation or "telephone number." It does not include extensions, etc. In this instance the Air Base itself would be regarded as a single line station because it has an internal switchboard. Therefore, a line station summary can be regarded as an excellent indicator of the growth of the number of residences in an area.

Source: Telephone Manager, Dover Office
Diamond State Telephone Co.

Figure 10
TELEPHONE LINE STATIONS
DOVER AREA 1950-1961

Note: See Table 19 for detailed data.



1954. However in the Myrtle area increased growth seems to have started at a later date and then tapered off from 1958 to 1960. The 1960-61 figures indicate that this area is once again experiencing an increased rate of growth.

At present the Dover Chamber of Commerce has a sizeable contract (over \$35,000) with a consultant to make an industrial survey of the area. Early indications seem to be that firms, such as electronics manufacturers, which require repetitive skills in their operations, could find a sufficient labor market in Kent County. There is no indication that any heavy industry would locate in the area due to the lack of a port and limited railroad facilities. However those industries which depend on truck transport for shipping would not be at a disadvantage.

4. Land Values. Little factual data seem to be available on land values inside the City or on the fringe where development seems probable. However in the County as a whole, land values have been altered considerably in the last ten years - not only by the suburban development but by the invasion of "potato farmers" mentioned previously (page 27).

The best farm land in 1935 brought only a little more than \$50 per acre.²⁸ Now however top-grade farm land is about \$350 per acre while the average value is about \$200 per acre. The value for top grade farm land represents

²⁸Bausman, R.O., op. cit., p. 86.

an increase of about a hundred dollars over the last ten years.²⁹ One Doverite's estimate of the value of farmland surrounding the city which had been used in early housing developments was that:

It brought \$300 to \$500 per acre and represented the best crop the local farmers have ever had!

However, the fact that low land values existed prior to the fifties and that a sufficient quantity of good land adjacent to the highways was available has tended to keep land out of the hands of speculators.

²⁹Vapaa, George K., Kent County Agricultural Agent, Personal letter dated April 20, 1962.

Chapter III

DOVER THROUGH THE LAST DECADE - PROBLEMS FACING A COMMUNITY WITH A RAPID POPULATION EXPANSION

The stage has now been set and discussion of the specific problem areas occurring during the last decade can begin. Dover was seen to be a slowly growing community throughout the first half of the twentieth century. Kent County on the other hand had remained relatively static through the first fifty years. Dover had not been faced with a rapid build-up situation during the War. It might have been if it had been the scene of a defense industry instead of a relatively self-contained military post. The expansion after 1952 was something quite different than the World War II situation. These men brought their families to stay - not only that, but they were usually young families, which today demand the most from a community in the way of services, education and housing.

In this chapter several problem areas will be discussed - housing, schools, extension of utility lines, transportation and traffic, and to a very minor degree social changes in the community.

At present Dover is still in a state of flux; although by now things have settled quite a bit from the hectic days of the mid-fifties. The problems have been solved by cooperation of both City and Air Force officials. The solutions have not always been ideal but at least they have been solutions.

A. The Housing Dilemma

1. Background. The general characteristics of housing in Dover and Kent County as of 1950 are summarized in Table 20. As can be seen from the low percentage of vacancies, housing was scarce in Dover even in 1950. Kent County however had a considerable number of vacancies - many of which were undoubtedly old vacant farm houses - soon to be again placed into use with the rapid influx of families into the area.

The City generally contained a large percentage of detached, higher-priced homes of relatively large size. However it also had its share of crowded, substandard dwellings (32.5 percent), mostly occupied by negro and other low-income families, in the western sector of the City behind "the Green" (Map #2-C4). Kent County contained more modest homes and over half of its dwellings were classified as substandard. The fact that of the 55.2 percent so classified only 11.6 percent were considered dilapidated, suggests the rural character of the County, where such urban amenities as running water or a private bath are not considered necessary for survival. Other characteristics of the housing throughout the County were age (more than 60 percent built before 1919) and the large percentage of single family

Table 20

SUMMARY OF STATISTICS FOR DOVER AND KENT COUNTY
FROM CENSUS OF HOUSING, 1950

	<u>City of Dover</u>		<u>Kent County</u>	
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
Number of Dwelling Units				
Owner Occupied	964	49.7	6,880	61.2
Renter Occupied	975	50.3	4,371	38.8
Total Occupied	1,939	100.0	11,251	100.0
Vacant	47	2.4	974	8.7
Non-resident	6	--	17	--
Total Dwelling Units	1,992	--	12,242	--
Type of Structures				
1 Dwelling unit, detached	1,280	64.3	10,029	81.9
1 Dwelling Unit, attached	27	1.4	109	0.9
1 & 2 Dwelling Unit, semi-detached	168	8.4	531	4.3
2 Dwelling Unit, other	222	11.2	720	5.9
3 & 4 Dwelling Unit	165	8.3	396	3.2
5 to 9 Dwelling Unit	84	4.2	207	1.7
10 Dwelling Unit or more	43	2.2	174	1.4
Trailers	3	0.2	76	0.6
Total DU's Reporting	1,992	100.0	12,242	100.0
Value of Owner-Occupied One-Dwelling Unit Structures				
Less than \$3,000	88	11.3	753	19.0
\$3,000 to \$3,999	46	5.9	406	10.2
\$4,000 to \$4,999	41	5.3	385	9.7
\$5,000 to \$7,499	128	16.5	1,045	26.3
\$7,500 to \$9,999	100	12.9	552	13.9
\$10,000 to \$14,999	208	26.8	529	13.4
\$15,000 or more	166	22.4	299	7.5
Total Reporting	777	100.0	3,969	100.0
Median Value	\$9,588		\$5,891	
Space in Dwelling Units				
1 room	29	1.5	237	2.0
2 room	82	4.3	580	4.9
3 room	229	11.9	830	7.0
4 room	291	15.1	1,700	14.4
5 room	367	19.0	2,103	17.7
6 room	408	20.2	2,676	22.6
7 room	214	11.1	1,610	13.6
8 room	173	9.1	1,168	9.9
9 or more	136	7.1	938	7.9
Total of DU's reporting	1,929	100.0	11,842	100.0

Table 20 (Continued)

SUMMARY OF STATISTICS FOR DOVER AND KENT COUNTYFROM CENSUS OF HOUSING, 1950

	<u>City of Dover</u>		<u>Kent County</u>	
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
Persons in Dwelling Units				
1 Person	247	12.7	1,281	11.4
2 Persons	670	34.6	3,471	30.8
3 Persons	416	21.4	2,500	22.2
4 Persons	304	15.7	1,829	16.3
5 Persons	142	7.3	979	8.7
6 Persons	69	3.6	501	4.4
7 Persons	50	2.6	292	2.6
8 Persons	12	0.6	155	1.4
9 Persons	18	0.9	97	0.9
10 Persons or more	11	0.6	146	1.3
Total DU's Occupied	1,939	100.0	11,251	100.0
Median Number of Persons in all Occupied Dwellings	2.6		2.8	
Crowding in Persons/Room				
0.75 or less	1,451	76.8	8,263	74.8
0.76 to 1.00	280	14.8	1,807	16.3
1.01 to 1.50	107	5.7	647	5.9
1.51 or More	53	2.8	335	3.0
Total DU's Reporting	1,891	100.0	11,052	100.0
Year Built (Based upon 20% sample)				
1945 or later	145	7.6	1,295	11.0
1940 to 1944	65	3.4	420	3.6
1930 to 1939	315	16.5	1,285	10.9
1920 to 1929	225	11.8	1,295	11.0
1919 or earlier	1,170	61.3	7,500	63.6
Total Reporting	1,920	100.0	11,795	100.0
Condition of Dwelling Units				
Dilapidated	234	12.3	1,971	16.1
Not Dilapidated	1,671	87.7	10,271	83.9
Total Reporting	1,905	100.0	12,242	100.0
Total Substandard Dwellings	619	32.5	6,395	55.2

Source: U.S. Bureau of the Census
U.S. Census of Housing: 1950
Vol. I, General Characteristics, Part 2.

detached homes (64.3 percent in Dover and 81.9 percent in Kent County). This then was the general milieu of housing prior to the invasion of Air Force families starting in 1952.

2. The Construction Period (1952-1954). In August of 1952 when speaking before the Rotary Club of Dover, the Base Commander of the newly reactivated Dover Air Force Base made what was to be an oft repeated plea for more housing - especially rental housing - in the Dover area. At that time there were only a few hundred men stationed at the Base. Although \$22,000,000 in contracts had already been awarded little immediate change was noticeable in Dover.

The major construction contracts had gone to New Jersey contractors from the Trenton area.¹ As commuting time was about two hours each way via the Turnpike, many of the men made the daily trip. Others found accommodations in the hotels and motels, returning home on the weekends. The few who moved into the area found small apartments or lived in trailer parks. Whenever possible local labor was pressed into service. Therefore until the rapid build-up of military personnel during 1954, all was relatively quiet in Dover.

Some developers had started building subdivisions outside the City as early as October of 1962. Table 21

¹McSherry, H.C., Personal interview, April, 1962.

shows the name of the developments started and the number of units to be constructed. The completion date for these was fixed for sometime in 1953. Altogether 1,300 new homes were to be ready for occupancy by the end of 1953.²

Table 21

NEW HOUSING DEVELOPMENTS STARTEDDOVER AREA 1952

Morris Estates	55 Units	FHA and VA approved
NW Dover Heights (negro)	115 units	FHA and VA approved
Doverbrook Garden Homes	178 Units	FHA and VA approved
Capitol Green	<u>275 Units</u>	FHA approved
Total	623 Units	

Source: Dover Index, 21 October, 1952, p. 2.

3. The Private Housing Period (1954-1959). In February, 1953 Colonel Zortman, the Base Commander, again held a press conference calling for additional housing and advising that due to strikes and "freezing of funds" by Washington, completion of the rehabilitation would be delayed until the fall of the year.³ In October of the same year, before the Dover Chamber of Commerce, the Base Commander stated that 1,800 rental housing units would be

²Dover Index, 21 October, 1952, p. 2.

³Wilmington Journal-Every-Evening, 18 February, 1953, p. 1.

to the City. Other editorials at the time stressed the serious effect the lack of housing was having on morale at the Base.⁶ However much was done was not enough, and in early 1955 the new Base Commander, General Guideon, started a program to obtain authorization for on-base housing.

4. The Capehart Era (1959 - present). The wheels of progress spin slowly and it was not until late in 1956 that authorization was received to begin construction of 500 units of Capehart housing.⁷ However token resistance, at least, was voiced by a local Real Estate group. This group met with Base and other interested officials in the office of Senator J.A. Williams of Delaware on 28 January, 1957. In order to clarify the situation it was decided to adjourn the meeting and conduct an immediate housing survey of the Dover Area. The results of that survey are tabulated in Table 22. Due to the results of the survey and based on the field inspection of local conditions by a government team, permission was given to continue with the contracting

⁶In an article dated 22 April, 1955, the Delaware State News referred to the fact that it cost \$22,000 to train an airman, and that in many instances, men discharged at Dover had given the housing situation as one of their reasons for leaving the service. Delaware State News, 22 April, 1955.

⁷The previous year several attempts had been made to have Wherry rental housing built, but this type of financing had lost favor with investors because of long mortgage period and high cost of maintenance throughout. Also if the Air Force should move out there was a good possibility that the owner would be stuck with housing no one wanted. Title VIII or Capehart housing is government owned and operated and thus the government takes the risks.

Table 22

DOVER AIR FORCE BASE

Family Housing Data as of 31 June, 1957.

Total Residing Off-Base	2,680
Living Within 15 miles	2,446
Living Beyond 15 miles	234
Rentals	2,205
Sales	475
Inadequate Units Occupied ^a	2,251
Excessive Cost (Rent and Utilities)	1,946
Excessive Distance	234
Adequate Units Occupied	127

Rentals Vs. Allowances

	<u>Airmen</u>	<u>Officers</u>
Number paying over \$10.00 over allowance	263	113
Number paying over \$20.00 over allowance	242	109
Number paying over \$30.00 over allowance	<u>455</u>	<u>161</u>
Total	960	483

Note: Rental does not include utilities which however are normally considered a part of the allowance as they are furnished with government quarters.

Personnel Separated from Dependents

Total separated families	607
Total that would occupy government quarters if available	478
Total not desiring to bring family into area	129

Total Requirements for Quarters

Officers	778
Airmen	<u>2,509</u>
Total	3,287

^aUnits considered inadequate for the following

reasons:

1. Excessive Cost (Rents more than \$10 over allowance).
2. Substandard (Crowded conditions, no private bath, no hot water, etc.)
3. Excessive Distance (15 miles or more).

Not considered in inadequate category are trailers. All other homes are listed as adequate.

Source: Dover Air Force Base History (January 1, 1957 - June 30, 1957).

of the first 500 units of Capehart Housing. In April 1957, the first part of a seven million dollar contract for these units was awarded for their design. One reason given by the survey team for the poor quality of existing housing in the area was lack of zoning outside of the City.

One estimate of the number of units in developments outside of the City, either completed or under construction in April 1957, is contained in Table 23.

Table 23

HOUSING DEVELOPMENTS DOVER AREA 1957

As of 1957	182	Rodney Village (incomplete
All of these)	59	
were completed)	55	Morris Estates
after 1950)	132	Kent Acres
)	214	Capitol Park
	400	Capitol Green
Total 2,407 units)	30	Briar Park (incomplete)
85-95% occupied by)	35	Doverbrook Gardens
DAFB personnel))	1,000	Edgehill and East Loockerman
		St.
	300	Moores Lake

Source: Unpublished Paper - G.L. Petsch, University of Delaware, April 1, 1957. Original source given was Dover Chamber of Commerce, however they now hold no records of housing during that period.

While a few of these figures are rather doubtful now - possibly due to curtailment of proposed housing starts when government quarters were authorized - it is felt that they do reflect the general status of new housing at that time. This same report also stated that rents had doubled from 1950 to 1954 and were still increasing at that time (1957).⁸

During the summer of 1958 occupants began to move into the Base Quarters. At first they were merely replaced in their off-base housing by additional personnel and their families. However by 1961, when a thousand families were then living on the base, several trends could be observed from reviewing the Air Base's Family Housing Report. The Reports for the years 1959-1961 are summarized in Table 24A. As seen from the summary, the number of families requiring housing was still increasing. Although there were 300 additional families in the area in 1960, the number occupying inadequate housing had dropped by almost 400 or 26.2 percent below the 1959 level. In 1961 there were an additional 800 families attached to the Air Base, and while the number of families in inadequate housing increased over the previous year's total it was still 18 percent below the 1959 level.

⁸Petsch, G.L., "Housing and Recreation in Dover," unpublished term paper (University of Delaware, 1957). This paper was based on information then available at the Dover Chamber of Commerce. However, this information was no longer available at the time of writing this report.

Table 24A

ANNUAL U.S.A.F. FAMILY HOUSING REPORTS 1959-61

DOVER AIR FORCE BASE, DELAWARE

	<u>1959</u>	<u>1960</u>	<u>1961</u>
Current Personnel Strength (tot)	7100	approx7500	approx8700 approx
Civilian Strength	1060	1046	1158
Current Personnel Housing Reqr (no civilian reqr. incl.)	3500	approx3800	approx4600 approx
Mil. Personnel)adequate	447	596	652
Owning and)inadequate	1510	1112	1239
Occupying)trailers	721	768	834
Houses in Area)			
Families living more than 25 miles or more than 1 hr. traveling time from base	19	38	49
Families not desiring to move into area	230	232	229
Families unable to find housing	35	57	83
Total Capehart occupied	500	1000	1000
(Excess distance	277	257	286
Inadequate (Substandard	416	379	429
(Excess cost	817	476	573

Source: AF Form 132 - Status of U.S.A.F. Family
Housing. All reports dated 31 May of year submitted.

This trend indicates that more adequate housing is continuously being built in the area. Another development which reduced the inadequate housing factor was the growing number of families living in trailers.

In examining the survey results of the reasons given for inadequacy of housing, it is noted that excess cost has shown the biggest decrease, probably because it has only been since 1960 that the supply of housing has finally begun to catch up with the demand. The housing situation was further relieved with the completion of the last increment of 250 units of Capehart housing in June, 1961. The total cost of the 1,255 units of Base housing, excluding the cost of the land, was approximately four and a half million dollars.⁹

However the need for low cost rental housing is still a major problem in the Dover Area. In a housing survey made by Air Force personnel during 1961 it was noted that most of the rental housing in the area was due to Air Force families who, having bought housing and then being subsequently transferred, were unable to find a buyer.¹⁰ As a result they rent the house while they try to sell it. Unfortunately this type of situation breeds a very difficult problem - one which has not yet been completely solved.

⁹Base Civil Engineer, op. cit., p. II.

¹⁰Base Historian, Dover Air Force Base, Official Base History, January - June, 1961 (unpublished report), p. 32.

In the 1961 survey mentioned above particular reference was made to the Capitol Green project. This project, most of which was completed around 1954, was in 1961, twenty percent vacant - or a better word might be abandoned. In the Land Use Map (Figure 8, page 53) the small size of the lots and subsequent congestion is readily observable. In the report the houses were described as being two or three bedroom units, very deteriorated, but demanding \$85 to \$100 per month plus utilities. Most of the present units are now owned by a rental company advertising starting prices of \$80 per month.

When visiting this site in April, 1962, it was observed that all of the homes (approximately 35 in all) on both sides of the northernmost block of New Castle Avenue had "Sheriff Sale" signs posted on the front doors. All of those homes were vacant.

This development as mentioned previously was built outside the city limits. The area was not what would be called ideal for a suburban development lying as it does across the St. Jones River from the City's sewage plant and downwind from the incinerator. The homes were hastily constructed to apparently minimum FHA standards.¹¹

¹¹Although several knowledgeable local citizens were interviewed concerning the Capitol Green project, the standard answer was that it had been built by a Wilmington developer and handled through the Federal Housing Administration in Wilmington. Most considered it a blot on the City's appearance but one in which no one locally shared any responsibility. It was also learned that the FHA had tried to get the Air Force to take it over as Capehart housing. However the units did not meet Air Force

The Capitol Green development is a prime example of an unplanned stopgap solution to a housing shortage. In the 1954-1955 period, housing around Dover and in fact within a 35 mile radius of the Base, was practically non-existent. Air Force personnel snapped up everything on the market - for rent or for sale. While those who rented were subject to inconveniences for a time, it was those forced into buying that were to have the long range problems.

Originally Capitol Green was estimated as being 90-95 percent occupied by Air Force personnel or civilians attached to the Base. Apparently after about three years the housing market had eased and Capitol Green was no longer "prime property." Homes became practically impossible to sell and when the original owners were transferred, they rented while they tried to find a buyer. The situation grew to be one where an absentee owner could not sell and would make no repairs while the house was up for sale. As a result deterioration was accelerated.

When the Capehart housing was opened in 1958, Capitol Green was quickly deserted. Many of the original

minimum specifications for government quarters. This proposal was also turned down when it was found that it would cost as much to bring the units up to Air Force standards as they had originally cost. For additional information on FHA "minimum standards" see also Agle, C.K., "Housing and Urban Development" in Breese, G. and Whitman, D.E. (Editors), An Approach to Urban Planning, (Princeton, Princeton University Press, 1953), pp. 58-59.

owners, who were trying to get their equity in the house in the form of rent, were forced to default on their mortgages. If rents had been low enough the project might have been salvaged. However a relatively high initial cost necessitated a rent of \$80 per month or more, merely to balance mortgage payments. As homes became unoccupied due to the conditions mentioned they became the prey of vandals, and after only a few years useful life became slum-like in appearance.

At present a new resurgence of interest is being evidenced in Capitol Green - this time by the negroes in Dover. Historically the negro section of Dover has been almost completely confined to the area west of the railroad (Map #2-4B and 4C). Many of the homes in this area are due for clearance under the proposed Dover Green urban renewal project (see page 149). While the Dover Housing Authority is presently engaged in constructing a low-rent housing project, it will not be sufficient to house all those to be relocated. So the unwanted homes to the East of the City are a logical point of invasion for the negroes in the community. However this does indicate a major shift in the social groupings in the City's spatial lay-out.

5. Present Housing Situation. The void created by a lack of low-rent housing has largely been filled by the house trailer. Table 20 indicates that in 1950 there were only 74 trailers in all of Kent County and only 3 in the City of Dover. On the other hand, Table 24A shows that

by 1961 there were 834 Air Force families alone using this form of residence. As part of the field work for this thesis the author conducted a telephone survey of the major trailer parks in the area (those listed in the Yellow Pages of the Lower Delaware Telephone Directory). The results of this survey are shown in Table 24B. This sample covered a total of 725 spaces. It is estimated that this represents approximately two thirds of the spaces in the Dover area. Except for the two trailer parks around Smyrna which indicated little Air Force business, the averages were from 65 percent to 95 percent utilization of existing spaces by Air Force personnel. The standard cost of \$20.00 per month which included water and sewage connection, as well as trash collection, was given in eight out of the eleven responses.

Another factor which has brought increased popularity to the trailer parks is the availability of rental trailers. These apparently are available for either straight rental or on a lease-purchase arrangement. The price range varied from \$55 to \$90 per month, the former for a small one-bedroom unit while the latter price was quoted for a large two bedroom unit.

Several proprietors indicated that in the past year demand for spaces had dropped off and that they were only seventy-five percent occupied.

Several other factors are responsible for the increased popularity of the trailers. Modern trailers are

Table 24B

TRAILER PARK SURVEY-DOVER AREA 1962

Survey Question	Location of Park & Coordinate (Map #2)		North Little Creek Rd (3-E)		Bay Road (6-F)		Magnolia (7 mi. Sth)		South Little Creek Road (4F)		2 1/2 Mi. Nth of City on U.S.Rt.13		Camden (9-B)		2 Mi. Nth of Smyrna (15 mi. Nth)		Rising Sun (10-D)		Moore's Lake (8-D)		Smyrna (13 Mi. Nth)		Frederica (10 Mi. Sth)	
In what year was your trailer park established			1950	1954	1958	1956	1956	1956	1956	1957	1958	1955	1957	1947	1955									
No. of spaces (Total 725)		30	162	74	61	27	50	26	55	86	50	2	70		104									
No. usually occupied by personnel connected with the Air Base		15	150	70	55	21	38	2-3	50	80														
Ave. monthly cost		\$18	\$30 ^a	\$18- \$22	\$20	\$20	\$20	\$20	\$20	\$23.50	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20
No of trailers available for rent		0	6	4	7	Sev.	0	0	5-10	Sev.	0	0	0	0	0									
Average monthly cost of rental trailers		--	\$70- \$90	\$55- \$85	\$60- \$85	\$75- \$83	--	--	--	\$80	--	--	\$50- \$85	--	--									

^a Average monthly cost also included 400 KW of electricity (equiv. to about \$8.50).

Source: Telephone survey with selected trailer park managers, April, 1962

relatively spacious and well-built. Unlike a home, a resident is not faced with the vagaries of the local real estate market at the time of his transfer. Also in the past year Congress has passed a liberal trailer allowance for military personnel to cover the cost of moving the trailer when a family is ordered to another station.

During the past eight years rapid changes have taken place in the housing situation at Dover. The government at first left the requirement to be filled by private developers. However when it became evident that private investors were unable or unwilling to meet the demand, the government intervened and built the 1,250 units of housing. Today the over-all housing problem in and around Dover is improving steadily.

Rents seem to range from \$80 to \$150 per month depending on the size and type of accommodation. Later developments, such as at Rodney Village and the privately-developed Sherwood homes section in the southwest corner of the City (Map #2-6C), are of good quality and form a fairly fluid block of housing in the local real estate market. Apparently those leaving the Rodney Village area have little trouble selling if they so desire.

The City itself has a housing problem, quite divorced from any influence of the Air Force, in the relocation of those now housed in the area to be cleared for the Dover Green West Renewal Project (see page 149). To partially solve this problem the Dover Housing Authority now has

under design a 75-unit development which will be built as low-rent public housing. However as this is to serve the existing needs of the community it is not felt that it will in any way ease the problems of the Air Force. The Air Force too now has a better understanding of the capabilities of the local housing market and has submitted a request for an additional 500 units.

In 1960, thirty-five percent of the population of the County had lived in their present home less than a year. For the State the comparable mobility rate was 24.5 percent.¹² Therefore it is easily seen how great has been the influence of the Air Force on the local mobility. Perhaps the rapid increase of modern housing developments now only partially required by the Air Force personnel, has helped to attract other families to the area, thus contributing to the continued growth of the City and the County.

¹²U.S. Bureau of Census, U.S. Census of Population: 1960, Final Report-PCB(1)-9B, Delaware, (Washington, U.S. Government Printing Office, p. 9-32.

B. The School Problem

1. The Student Population. While the Air Force families were forced to scatter all over Kent County, especially during the early period of severe housing shortages, the majority remained as close to Dover as possible. As a result the two school districts closest to the Base bore the brunt of the rapidly increasing school population. These two districts, the Dover Special School District and the Caesar Rodney School District, were to have their combined student enrollment grow from 2,893 during the 1950-51 school year to 6,459 by the end of 1960.

Table 25 shows the net enrollment of these two districts from 1940 to 1960. It is easily seen from the table that enrollment during World War II was not appreciably increased. In fact enrollment dropped off during several of the War years because of smaller entering classes due to the low depression birth rate. However, it does illustrate that families of servicemen were not generally brought into the area and thus the school system did not feel any impact during the World War II operation of the Base.

With the reactivation of the Base in 1952, an impact was generated which only today after ten years is beginning to ease. Of considerable importance in this respect was the opening of the Base School in April, 1961, which now has a student enrollment in excess of a thousand.

Table 25

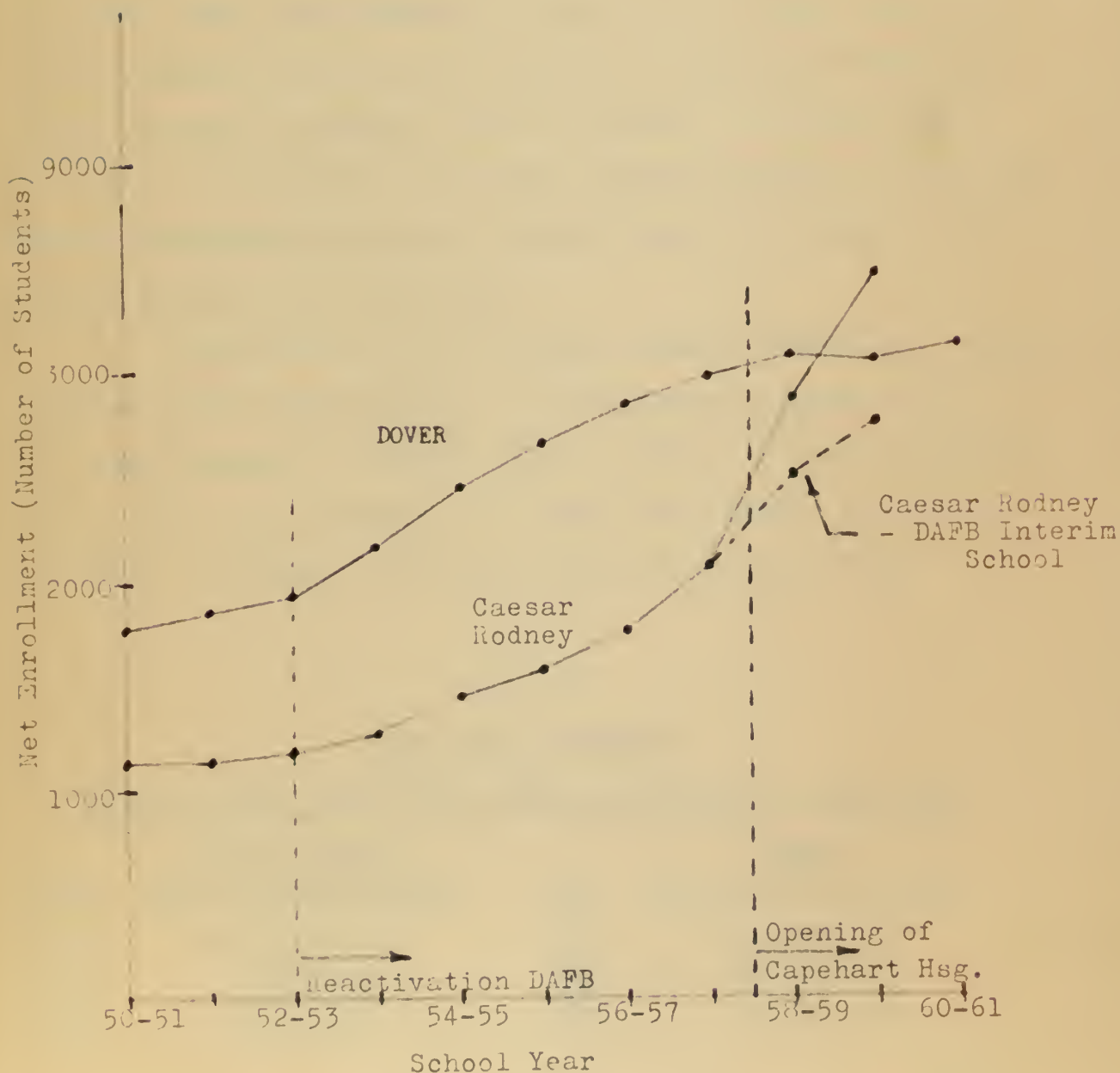
NET ENROLLMENT-DOVER AND CAESAR RODNEY SCHOOL DISTRICTS1940-1960

Year	Dover		Caesar Rodney		Year	Total	Elem.	Secondary		Caesar Rodney		Total	Elem.	Secondary	
	Prim.	Sec.	Prim.	Sec.				7-9	10-12	7-9	10-12				
1940-41	1,162	282	735	101	1950-51	1,782	976	486	320	1,111	644	266	201		
1941-42	1,185	316	729	103	1951-52	1,842	1,032	499	311	1,130	662	273	195		
1942-43	1,179	349	680	100	1952-53	1,907	1,120	536	251	1,186	707	264	215		
1943-44	1,143	317	687	92	1953-54	2,180	1,329	576	275	1,261	768	262	231		
1944-45	1,130	376	700	89	1954-55	2,424	1,478	637	309	1,433	882	313	238		
1945-46	1,174	397	711	81	1955-56	2,643	1,607	722	314	1,570	987	345	238		
1946-47	1,224	402	788	93	1956-57	2,832	1,703	774	355	1,754	1,111	403	240		
1947-48	1,219	415	807	86	1957-58	2,978	1,885	703	390	2,046	1,321	443	282		
1948-49	1,266	421	861	96	1958-59	3,073	1,905	724	444	2,887	1,943	575	369		
1949-50	1,300	430	937	98	1959-60	3,036	1,947	623	466	3,423	2,297	717	409		
					1960-61	3,107	--	--	--	--	--	--	--		

Source: Annual Report, Delaware State Board of Education (Dover, Delaware) for years 1950-51 to 1959-60. Summary for years 1940-1950 was extracted from 1954-1955 Annual Report.

Figure 11
 NET SCHOOL ENROLLMENT
 CAESAR RODNEY AND DOVER SCHOOL DISTRICTS
 1950-1960

Note: See Table ²⁵ for Detailed Data.



However the last decade has been a period of over-crowding, double sessions, temporary classrooms and expansion programs.

Figure 11 demonstrates graphically the increase of net enrollment throughout this period for both Dover and Caesar Rodney. Until about 1956 the growth at Dover was most pronounced. Since then, the construction of Rodney Village and other developments to the South of Dover which lay in the Caesar Rodney School District, has caused this District to have the greater rate of growth. This has even been more pronounced as military families began to move into Base housing which is also located within the bounds of the Caesar Rodney School District.

Fortunately both Dover and Caesar Rodney had started expansion and modernization of facilities programs prior to the reactivation of the Air Base in 1952. This is evidenced by the bond issue summary for these two districts contained in Table 26 below. It is also noted that since 1952

Table 26

BOND ISSUE SUMMARYCAESAR RODNEY AND DOVER SCHOOL DISTRICTS - 1950-1960

<u>Caesar Rodney</u>		<u>Dover</u>	
<u>Year</u>	<u>Amt. of Bond Issue</u>	<u>Year</u>	<u>Amt. of Bond Issue</u>
1950	\$150,000.00	1950	\$ 86,400.00
1951	70,000.00	1954	480,000.00
1954	100,000.00	1956	438,000.00
1956	320,000.00	1958	100,000.00

Source: Annual Report, Delaware State Board of Education, 1959-1960, p. 131

expansion has been greatly accelerated. The Caesar Rodney summary does not include the Dover Air Force Base school which was completely funded by the U.S. Department of Health, Education and Welfare.

2. School Financial Support. The Public School System in Delaware is under the overall supervision and administration of the State Board of Education. The actual day-to-day administration is accomplished through the State Department of Public Instruction. At the local level each School District, generally containing an incorporated town and the surrounding built-up area, is governed by a Board of Trustees, who are elected by the qualified voters of the District.

Funds for operating the local districts are generated from several sources. From the general fund of the State two categories of appropriations are made. The first category is used to pay the salaries of teachers in accordance with a unit basis -each unit representing a certain number of pupils in different classifications.¹³ The second category is a uniform sum appropriated to each school district, based on the number of units of pupils in the district, for the purpose of school costs except debt

¹³State of Delaware, Department of Public Instruction, School Laws of Delaware, 1961, (Dover, Delaware: Bulletin No. 6-61), p. 75. For example, a unit includes 25 pupils or major fraction thereof for primary schools and 20 pupils, or major fraction thereof in secondary schools. For handicapped or mentally deficient children a unit runs from 8 to 15 depending on the type of affliction.

service and transportation of pupils.¹⁴

The local school districts are also authorized to levy taxes to obtain additional funds by means of a school tax on property, a poll tax or per capita tax, and since 1957 a trailer tax. A summary of the Dover Special School District Property Tax and Capitation Tax Revenues is contained in Table 27. This Table does not indicate the amount of trailer tax collected. The Table also shows that the assessed valuation within the school district has more than doubled in the past ten years - an indication of the increased housing in the area.

3. Federal Aid to Education in Federally Impacted Areas. There is one other important method by which the Dover and Caesar Rodney School Districts obtain their revenues. This is by the federal assistance provided under Public Law 874 for the operation and maintenance of schools in federally affected areas. For both Dover and Caesar Rodney this assistance is in the amount of the Average Daily Attendance of each child, with a parent employed on federal property, multiplied by one half of the local contribution rate.¹⁵

¹⁴Ibid., passim.

¹⁵"Federal Responsibility in the Field of Education." A study committee report submitted to the Commission on Intergovernmental Relations by the Study Committee on Federal Responsibility in the Field of Education, (Washington, D.C.: U.S. Government Printing Office, 1955), passim. Chapters 6 and 7 of this publication contain a summary of the main provisions of Public Law 874 and Public Law 815, which provide for financial assistance to schools in federally affected areas.

Table 27
FINANCIAL STATISTICS
DOVER SPECIAL SCHOOL DISTRICT, 1951-1962

Property Taxes

<u>Year</u> <u>Ending</u>	<u>Assessed</u> <u>Valuation</u>	<u>Rate per</u> <u>\$100.00</u>	<u>Total Levy</u>
1951-52	\$15,002,934.92	.25	\$ 37,507.33
1952-53	16,135,126.71	.23	37,110.79
1953-54	18,327,051.45	.23	42,152.21
1954-55	22,035,025.76	.33	71,261.27
1955-56	24,202,966.12	.26	61,669.16
1956-57	26,610,864.26	.40	106,443.46
1957-58	27,670,604.28	.40	110,682.42
1958-59	29,145,049.83	.46	134,067.23
1959-60	30,657,575.40	.47	144,090.56
1960-61	34,657,020.45	.50	173,285.10
1961-62	36,918,948.05	.58	214,129.90

Capitation Taxes

<u>Year</u> <u>Ending</u>	<u>Number</u> <u>Capitations</u>	<u>Rate</u>	<u>Amount</u> <u>Collected</u>
1951-52	5165	\$2.00	\$ 8,542.05
1952-53	5183	2.00	8,468.75
1953-54	6091	2.00	9,463.44
1954-55	5803	3.00	13,885.49
1955-56	6971	3.00	16,073.31
1956-57	8461	7.00	41,017.84
1957-58	8013	7.00	40,571.66
1958-59	7388	7.00	38,579.61
1959-60	7010	7.00	38,190.99
1960-61	7017	7.00	36,249.75
1961-62	7157	7.00	25,782.15

Source: Dover Special School District, "Notice of Sale of \$1,276,000 Serial School Building Bonds," November, 1961.

The amount of federal aid granted to the various school districts throughout the State is shown in Table 28. The relative importance of this financial assistance to the Dover District is seen by the fact that federal grants in 1959-60 represented a quarter of the school revenue other than that provided by the State. To the community of Dover as a whole this represents a government subsidy for the expansion of their school system to accommodate the additional students of federal employees, both military and civilian. It also acts as a means of reducing the tax burden on the local community which would be required in order to finance school improvements and additions.

Because of the peculiar arrangement in Delaware of State support together with local taxation, the schools receiving federal grants are in an enviable position. Their State support is granted on the same basis as schools receiving no federal grants.¹⁶ Since State support covers all salaries and a portion of the maintenance, covering approximately 75 percent of the budget in these two districts, the tax load on the local population is relatively light. Also the school then has additional money with which to broaden its educational program. Therefore federal aid in this respect has more than offset the loss of taxable property to the community.

¹⁶ Much of the information concerning the school situation gathered by the author was obtained during an interview with Mr. D.M. Green, Supervisor, Dover Special School District. The information obtained during the interview is used herein as the basis of the discussion on federal aid and school conditions in Dover during the last ten years.

Table 28

FEDERAL GRANTS UNDER PL874, 1954-1960

Various School Districts in the State of Delaware

	<u>54-55</u>	<u>55-56</u>	<u>56-57</u>	<u>57-58</u>	<u>58-59</u>	<u>59-60</u>
Lewes	\$			\$ 12,245.20	\$ 8,792.92	\$ 8,560.00
Milford		\$ 4,120.00	\$ 10,442.63	12,681.48	17,738.25	16,723.00
New Castle			10,278.00	912.15		
Smyrna			3,315.00	8,403.52	10,088.72	11,148.00
Frederica			6,755.00	8,566.41	8,898.28	8,928.80
Felton			2,387.00	6,387.83	6,071.16	10,415.00
Seaford	554.50					14.05
Magnolia			2,121.00			6,374.00
Clayton			1,799.59		4,731.92	
Harrington						
Rehoboth						120.03
Caesar Rodney	22,689.04	31,125.68	75,248.00	96,468.31	95,254.92	145,985.68
Dover	<u>106,664.14</u>	<u>98,257.96</u>	<u>46,522.78</u>	<u>64,427.10</u>	<u>67,115.16</u>	<u>66,650.00</u>
Total	\$129,907.68	\$129,503.64	\$158,869.00	\$210,092.00	\$218,691.33	\$269,918.56

Source: Annual Report Delaware State Board of Education
(Dover, Delaware) for years 1954-1960.

4. Effects of Rapid Expansion. However even with federal assistance the problems surrounding the education of school children in the two districts were severe. Dover Elementary School went into double sessions for the first grade in March, 1954. In September, 1954 both first and second grades were on double session, and this condition prevailed until the completion of the South Dover Elementary School in 1956. Also during this period it was necessary to build two classrooms in the basement of the existing Elementary School, have seven elementary school sections in the High School, and partition the gymnasium for classroom use.

Caesar Rodney schools, while not as hard hit initially, during 1957 began to experience even greater difficulties than Dover. Prior to the opening of the interim Base School in September, 1958, Caesar Rodney School District was forced to rent space in nearby houses, put classrooms in an abandoned school and even to hold two classes in an old fire-house.¹⁷

In 1957, the Delaware General Assembly enacted the following amendment to the School Laws of Delaware.

Section 1508. Limitation on use of tax revenues.

No tax revenues of the State, or of any political subdivision thereof, or of any School District, shall be used for the free public education of pupils living

¹⁷Letter to Commissioner of Education, Department of Health, Education and Welfare and from Hdqtrs, 1607th Air Transport Wing (H) MATS, dated 10 July, 1959.

in the State on real property exempt from taxes levied on real property. The limitations of this section shall not apply to pupils living on real property owned by the State or any of its political subdivisions, or by the Federal Government where such real property is owned by the State or any of its political subdivisions, or by the Federal Government where such real property is used for non-military housing, or where such real estate is exempt from such taxes on account of the use of such property for charitable, educational or religious purposes.¹⁸

This legislation was introduced with the apparent approval of local school officials and military officials at the Base. It was enacted principally to make it impossible for the children living in government housing to attend local schools except under a tuition basis; and thus this law became the basis for a project submitted to the Department of Health, Education, and Welfare for the establishment of a Base School.

At the time, the Caesar Rodney District was faced with approximately 500 children moving into Base Housing in the summer of 1958. Under Public Law 815 the District would have been eligible for 95 percent federal assistance for construction of a new building, plus the substantial aid heretofore mentioned for operating expenses.¹⁹ However the school district announced that even the five percent required (approximately \$25,000.00) was not available, and that is why the Department of Health, Education and

¹⁸State of Delaware, Department of Public Instruction, op. cit., p. 74.

¹⁹Federal Responsibility, op. cit., passim.

Welfare would have to build a school for the Air Forces' use. However the Caesar Rodney School District now operates the school, on a reimbursable basis, for the Department of Health, Education and Welfare as an Air Force School.

5. Growth of Base School. The interim Base School began operations in September 1958, as the first families moved into government housing. The original facility was a converted NCO Club building, and was to house grades one through six. During the next two years the major overcrowding in the Dover area became concentrated at the Base School. By September 1960, although 191 high school students living on the Base still attended the civilian schools, the Base School was now using temporary Butler buildings, plus mobile trailers to provide eighteen additional classrooms for the 859 students enrolled.

On 4 April, 1961, the new Base School was opened for the primary and junior high grades, and at long last an adequate solution had been reached. The new school has twenty-six primary classrooms and six junior high rooms together with cafeteria, library, etc.²⁰ The following school year saw the opening of the Base High School.

However, only students residing on the Base are allowed to attend the Base School. Other children of military personnel must go to the Caesar Rodney and Dover District's schools. In the same respect those children living in

²⁰Base Historian, Official History Dover Air Force Base, January 1 to June 30, 1961, (unpublished) p. 63.

government housing must attend the Base School, unless they go to one of the private schools, such as the Catholic parochial school in Dover. This requirement has been the cause of some dissention, especially in the military community.

Another implication is that children, while their families are waiting for government housing to become available, are entered into the local school. When their families are ordered into quarters, even though it is only a mile away from their existing residence, the children must transfer to the Base School. As a result there is a constant rotation of students in classes throughout the Schools operated by both Districts.

6. Shortage of Teachers. An associated problem to the student population is the high turnover of teachers. There is an acute shortage of teachers in the Dover Area. The Superintendent of the Dover School District spoke of ranging from North Carolina to Maine to search for qualified teachers. In 1952 there were 78 teachers in the Dover District; by 1962 this had increased to 143. In the three-year period from 1957 to 1960 the teaching staff in the Caesar Rodney District was increased by 53 teachers. During this period there was a constant turnover of personnel for both School Districts.

In many instances Air Force wives who are qualified teachers are employed. However with their husbands subject

to being moved at any time, it introduces an element of uncertainty in the staff composition of the school.

At present there is a consolidation movement underway in the Dover area. Several advantages are to be gained from the consolidation of the Caesar Rodney-Dover Districts. With the great built-in mobility of the school population, the whole operation would be made more flexible to meet the needs of the community. New facilities which are needed could be so located as to benefit both Districts. Consolidation would also eliminate the need for duplicate facilities, which because of the nearness of the two Districts, are superfluous. In another respect consolidation would also be desirable, in that partial classes could be combined, thereby easing the over-all teacher shortage.

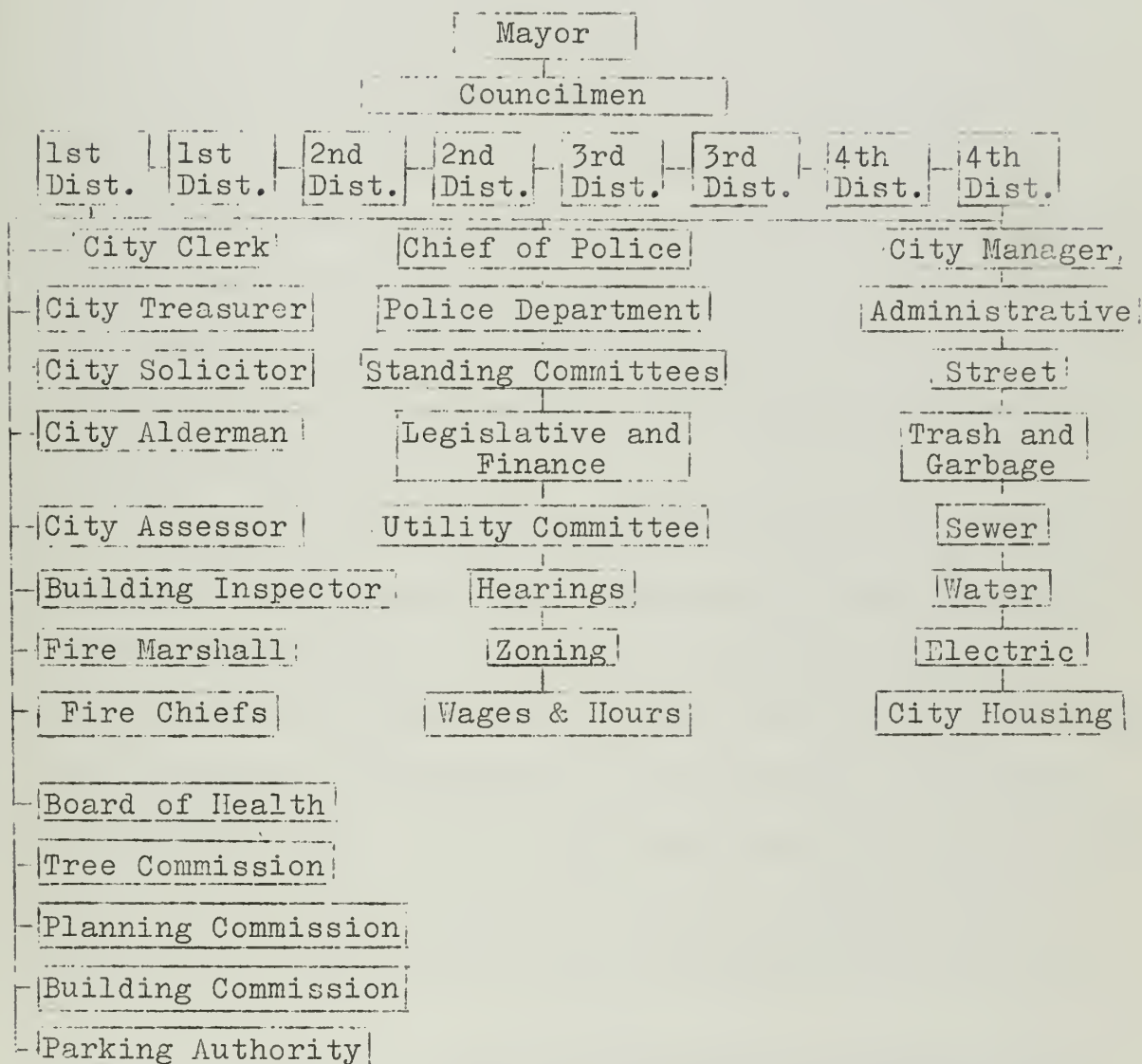
C. Government and Municipal Services

1. Government. The City of Dover is governed by a Mayor and City Council. The structure of the City Government, as shown in Figure 12, is of the modified City Manager type. All of the City's Departments felt the impact of the Air Base's expansion. However it was the City Manager's office with its responsibility for municipal utility services which was to experience not only the rapid expansion inside the City, but also a demand for its utilities throughout the surrounding countryside.

The City Council of Dover is composed of eight members; four of whom are elected each year. The Mayor is elected annually and has no vote in the Council except in case of a tie. Because of the constant change in Council membership, capital improvements are normally undertaken on an annual basis. Large scale improvements are normally provided for in a bond issue authorized by a special referendum.

The legislative body of Kent County is the Levy Court. One of the chief functions of this body is the fixing of the tax rate and assessment of real property, which is required by law every four years. This assessment is also used as the basis of the City's assessment and that of the School Districts (see page 114). The County Levy Courts for the most part have historically confined their jurisdiction to the courts and the social institutions

Figure 12
CITY OF DOVER
GOVERNMENT STRUCTURE



Source: Greater Dover Chamber of Commerce.

serving the County. The municipalities, who receive their Charter from the State Legislature, have been free to provide their own utilities, zoning, etc.²¹

2. Electrical Service. The City of Dover has operated a municipal power plant since 1902. Until 1948 this plant provided all the power required for the City and the surrounding area. Since that time, however, the City has been required to buy supplementary power from the Delaware Power and Light Co., a private utility which supplies approximately eighty-five percent of the State's total power output.²² The area supplied by the City covers approximately 88 square miles, the boundaries of which are as shown on Map #1.

With the reactivation of the Air Base in 1952 the Delaware Power and Light Co. extended its service to the Base. In April, 1953 the City of Dover challenged the Delaware Power and Light Co.'s right to do so, on the basis that it was an infringement of its territory. The City had supplied power to the Army Base there during the War.²³ The City was denied its petition before the Court of Chancery, but this decision was rescinded by the Court of

²¹Dolan, P., The Government and Administration of Delaware, (New York: Thomas Y. Crowell Co., 1956), passim.

²²In 1957 industrial generation accounted for 12.1 percent of the State total. Municipal generation supplied an additional 3.5 percent of the total. Bureau of Economic and Business Research, op. cit., p. 67.

²³Wilmington Morning News, 3 April, 1953, p. 1.

Appeals later in the year. In December, 1953, the Public Service Commission denied the petition of the Delaware Power and Light Company, and thus Dover won the right to furnish power to the Air Base. In April, 1954, the City contracted with Delaware Power and Light Co. for the energy required to meet the Air Base's needs for a ten year period. At the same time however, the many new housing developments were generating a continuously increasing demand on the City's system.

From 1951 to 1959 the Dover system's power requirements increased sixfold (Table 29). The City was required to purchase power in ever increasing amounts to meet the demand. In 1956, although the capacity of the power plant was greatly increased with the addition of a 5,000 KW turbo-generator, it was barely enough to meet the local demand at that time. During 1959, the City had an engineering consultant conduct a thorough study of the existing plant and submit recommendations for future expansion.

The result of the consultants' recommendations is the new, nine million dollar generating station which began operations earlier this year. The new facility contains two turbo-generators of 16,500 KW capacity which should be sufficient to satisfy local demands, with the exception of the Air Base, for the immediate future. The plant was so designed that the addition of a 22,000 KW generator to meet the Air Base's needs after the present

Table 29

KWH PURCHASED AND GENERATEDCITY OF DOVER 1951-1959

<u>Fiscal Year</u>	<u>KWH Generated</u>	<u>KWH Purchased</u>	<u>Total</u>
1951	6,803	8,434	15,237
1952	8,090	10,441	18,531
1953	9,339	11,796	21,135
1954	8,270	15,492	23,762
1955	9,994	26,030	36,024
1956	9,135	38,903	48,038
1957	19,125	38,903	58,028
1958	41,060	28,896	69,956
1959	27,447	54,902	82,349

Source: Kuljian Corporation, Engineering Report,
New Municipal Power Plant, City of Dover, April 1, 1960.

Table 30

SELECTED ELECTRICAL SERVICE DATADOVER AIR FORCE BASE1954-1959

	<u>KWH Consumed</u>			<u>Revenue</u>		
	<u>(1000)</u>	<u>Percent Increase</u>	<u>Percent of Dover Total</u>	<u>\$1000</u>	<u>Percent Increase</u>	<u>Percent of Dover Total</u>
1954-55	9,134	Base	29.3	141	Base	14.3
1955-56	14,004	53.1	32.5	206	46.1	16.3
1956-57	18,444	31.7	36.0	265	28.5	18.5
1957-58	22,658	22.8	36.9	335	26.3	20.0
1958-59	31,028	36.8	41.8	455	35.8	23.5

Source: Kuljian Corporation, Engineering Report,
New Municipal Power Plant, City of Dover, April 1, 1960.

contract with Delaware Power and Light Company expires in 1964, is possible. The decision to install this additional generator has not been made at present.²⁴

The rate of growth of power requirements in the Dover area since the reactivation of the Air Base has truly been significant. The Air Base itself, as the prime customer of the City, has increased its consumption from 9,134 kilowatt-hours in fiscal year 1955 to 31,028 kilowatt-hours in 1959. In the latter year this represented 41.8 percent of the City's total sales and provided 23.5 percent of the City's electrical service revenue (Table 30). The large increase in kilowatt-hours consumed at the Air Base during fiscal year 1959 resulted from the opening of five hundred units of government housing that year. As the government provides electricity to the occupants of quarters, this is furnished under the single contract with the Air Force.

It is interesting to note that in the same year the City's growth in residential customers increased, although several hundred of the families ordered into quarters could be expected to have moved there from the Dover Service area. This tends to verify the statement on page 100 that by 1958 the demand for housing was so great that new-comers moved into the housing vacated by those leaving for the Base quarters.

²⁴Kuljian Corporation, Engineering Report, New Municipal Power Plant, City of Dover, (unpublished, dated April 1, 1960, passim).

The rate of growth of over-all sales in the Dover service area has been much greater than in either Kent and Sussex Counties combined or the State of Delaware.²⁵

Table 31 which is a summary of selected electrical service requirements for the five year period commencing June, 1954 illustrates this growth. For instance, the annual percentage increase of residential customers in the Dover service area has been approximately double that of both the State and Kent and Sussex Counties during this period.

In practically all categories (sales, customers and revenue), the annual percentage increase in both the residential class and in the total of all classes has been substantially greater in Dover than in either Delaware or the combined Kent and Sussex Counties. As a result, Dover, which in fiscal year 1955 accounted for only 17 percent of the total sales representing 22 percent of the total revenue of the "down-state" counties, had increased its sales to 26.5 percent of the total by fiscal year 1959. This represented 34.4 percent of the total revenue of the two Counties in 1959. The importance of this increasing revenue will be shown when discussing the municipality's economic base (see page 135).

3. Other Utilities. During the past decade the City has been required to extend its water and sewer system

²⁵ Delaware Power and Light Company does not keep separate records for these two Counties, but combines them for purposes of operation and statistical data.

Table 31

SELECTED ELECTRICAL SERVICE DATADOVER, KENT AND SUSSEX CO. AND DELAWARE STATE1954-1959

No. of Customers

Fiscal Year	<u>Residential</u>			<u>Total</u> <u>Kent &</u> <u>Sussex</u>	^b <u>Dela.</u>	<u>Residential</u>			<u>Total</u>		
	<u>Kent &</u>					<u>% Increase</u>			<u>% Increase</u>		
	<u>Dover</u>	<u>Sussex</u>	<u>Dela.</u>			<u>Dov.</u>	<u>K&S</u>	<u>Dela</u>	<u>Dov</u>	<u>K&S</u>	<u>Dela.</u>
1954-55	5,335	15,536	83,660	5,981	18,040	98,154	Base	Base	Base	Base	Base
1955-56	5,718	16,178	86,829	6,420	18,697	102,097	7.2	4.1	3.8	7.5	3.6
1956-57	5,980	16,618	88,598	6,725	19,190	104,349	4.6	2.7	1.1	4.7	2.7
1957-58	6,226	17,081	90,453	7,029	19,713	106,735	4.1	2.2	2.1	4.5	2.7
1958-59	6,526	17,522	96,826	7,423	20,208	109,448	4.8	2.6	7.1*	5.6	2.5

*Due to reclassification of customers in commercial and residential classes.

KWH Sales (1,000)

Fiscal Year	<u>Residential</u>			Dover	<u>Total Kent & Sussex</u>		Dela.	<u>Residential % Increase</u>			<u>Total % Increase</u>		
	<u>Dover</u>	<u>Kent & Sussex</u>			<u>Dov</u>	<u>K&S</u>		<u>Dov</u>	<u>K&S</u>		<u>Del.</u>		
1954-55	11,245	39,992	234,211	31,182	188,271	1,031,449		Base	Base	Base	Base	Base	Base
1955-56	14,659	44,539	271,588	43,028	218,460	1,157,789		30.4	10.4	16.0	38.0	16.0	12.2
1956-57	16,001	48,434	300,048	51,353	221,352	1,211,617		9.2	8.8	6.4	19.3	1.3	4.7
1957-58	17,832	51,945	324,088	61,656	247,454	1,242,894		12.1	7.1	8.0	20.1	11.8	2.6
1958-59	18,935	55,504	355,769	74,801	281,584	1,374,326		5.6	6.8	5.5	21.3	13.8	10.5

Table 31 (Continued)

SELECTED ELECTRICAL SERVICE DATADOVER, KENT AND SUSSEX CO. AND DELAWARE STATE1954-1959

KWH Revenue (\$1,000)

Fiscal Year	<u>Residential</u>		<u>Total</u>		<u>Residential</u>		<u>Total</u>	
	<u>Dover</u>	<u>Kent & Sussex</u>	<u>Dover</u>	<u>Kent & Sussex</u>	<u>% Increase</u>	<u>Dov</u>	<u>% Increase</u>	<u>Del.</u>
1954-55	437	1,508	7,461	985	4,476	20,137	Base	Base
1955-56	543	1,659	8,365	1,263	5,048	22,436	24.3	10.0
1956-57	582	1,804	9,090	1,433	5,253	23,984	7.2	8.7
1957-58	637	1,932	9,689	1,688	5,742	25,182	9.5	7.1
1958-59	667	2,057	10,482	1,441	6,324	27,332	4.7	12.9
							Base	Base
							28.2	12.8
							13.5	4.1
							16.4	9.4
							16.4	9.0
							16.4	8.6

^aDover totals include energy supplied to Dover Air Force Base.
^bDelaware total includes that sold to other power utilities.

Source: Dover Data: Kuljian Corporation, Engineering Report, New Municipal Power Plant, City of Dover, April 1, 1960.

Delaware, Kent and Sussex Data: Commercial Sales Dept., Delaware Power and Light Company, Wilmington, Del.

well beyond the city limits, as indicated in Figures 13 and 14. Although not shown on these figures, the city water system also serves Capitol Park (Map #2-6E) and Rodney Village (Map #2-7C) to the South. These figures also indicate the recommendations for improvements to the existing system as made by the consultant to the Dover Planning Commission in 1960.²⁶

The City's water system, another important source of revenue in recent years, at present obtains its water from five deep wells. The water is stored in two water towers of 250,000 gallon and 100,000 gallon capacity to insure emergency supply and adequate pressure. Improvements to date have been made on an annual funding basis as the need arose.

The City's sewer system has also been extended during the past ten years, although not as extensively as the water system. Many of the new housing developments, of which Capitol Park is an example, have septic tank installations. Besides extending the existing system, the City has undertaken the separation of many of the old combination storm and sanitary sewers which previously existed. Newer storm sewers have been provided, greatly increasing the capacity of the existing sanitary sewer system. A typical annual expenditure for capitol improvements to the sewer system

²⁶Raymond and May Associates, City of Dover, Development Plan 1960, Part two submitted to City Planning Commission December 30, 1960, pp. 30-31. Referred to hereafter as Raymond and May II.

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DISTRIBUTION LINES
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WELLS

SOURCE: Map & proposals of Dover City Engineer & Water Department

LEGEND

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Figure 1

Source: *U.S. Census Bureau, Current Population Reports*, 1990.

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was the \$86,227 expended in fiscal 1959.²⁷

Garbage and solid refuse is collected free of charge within the city limits. The garbage so collected is burned in the City Incinerator. Solid refuse and garbage from the outlying communities are disposed of in dumps, burning dumps and landfill operations. These are conducted on a local basis and no large scale sanitary fill area exists. To date this has not been a problem area.²⁸

The Dover Air Force Base receives no supporting utility services from the City of Dover other than electrical power. Its water system, which draws its supply from three deep wells, has a capacity of 2,300,000 gallons per day. This is more than adequate to supply the demands of the Base including the housing area. The Base also has its own sewer system complete with treatment plant and a separate storm drainage system. Garbage is collected and disposed of by both a private contractor and station forces.²⁹

4. Municipal Government. Expenditures and Revenues. One of the reasons that the City of Dover has come through the great expansion of the last decade and still remained in sound financial shape has been the efficient management of the City's utility services. Although during the early fifties most of the revenue produced from these sources was poured back into capital improvements, today they

²⁷Ibid., p. 60.

²⁸Ibid., p. 32.

²⁹Base Civil Engineer, op. cit., passim.

constitute the major source of revenue

An indication in changes in sources of revenues during the past few years is shown in Table 32 below. The

Table 32

TRENDS IN REVENUE SOURCES - DOVER

FISCAL YEARS 1955 and 1960

<u>Revenue Source</u>	<u>FY 1955</u>	<u>FY 1960</u>	<u>Percent Change</u>
Electric Fund (net)	\$ 5,229*	\$491,732	9,300.0
Real Estate Tax	148,926	188,098	26.3
State Street Aid		60,405	
Special Assessments	235	28,395	1,200.0
Parking Meters	18,792	24,109	43.5
Fines	18,893	23,185	22.7
Water Fund (net)	-7,824	21,770	
Sewer Rents	10,724	21,127	96.8
Poll Tax	12,750	12,082	-5.7
Other Sources	<u>20,464</u>	<u>20,785</u>	<u>1.6</u>
Total	\$228,189	\$891,688	291.0

*Low due to large power plant construction

Source: City Audits and City Treasurer.

Dover Power and Light Company and the City Water Department are operated as separate accounts with only their excess revenues being deposited in the City's general fund. As a result, from the Table it is seen that in FY 1955 with a large capital expenditure requirement, little revenue was realized from the electric fund. However, by 1960, this had grown to 55 percent of the total revenue.

Real estate tax on the other hand, which accounted

for 65.1 percent of the revenue in 1955 had dropped off to 21.1 percent of the total in 1960.

Tax rates for the City are \$.90 per hundred of assessed valuation. This rate was decreased in 1956 from \$1.25 per hundred to the present rate because of a reassessment of property that year. Also beginning in 1956 the assessment was based on 60 percent of the actual value in lieu of the 50 percent figure previously used. Table 33 shows the assessed valuation of taxable property for the years 1951-59.

Table 33

TOTAL ASSESSED VALUATIONS CITY OF DOVER1951-1959

1951	\$10,721,000
1952	10,857,675
1953	11,268,000
1954	11,624,496
1955	11,914,000
1956	18,848,800
1957	19,145,800
1958	19,386,500
1959	20,276,100

Source: City Clerk's Office, City of Dover

The City also levies a per capita tax of \$3.66 per person over 21 years of age. As a revenue source however this tax is practically negligible. The importance of the electric fund as a source of revenue need hardly be mentioned. It is indeed the rare City in the face of increasing costs of

administration which can decrease its tax rate as Dover has.

Trends in operating expenditures are indicated in Table 34. While revenues had increased by 290 percent during the five year period, expenditures had also increased but only by 70 percent.

Table 34

TRENDS IN OPERATING EXPENDITURES - DOVER

FISCAL YEARS 1955 AND 1960

<u>Department</u>	<u>FY 1955</u>	<u>FY 1960</u>	<u>Percent Change</u>
General Administration	\$107,280	\$196,854	83.4
Stores Department	8,010	24,058	201.0
Street Department	105,394	151,791	43.9
Police Department	75,402	99,185	31.3
Incinerator and Sewer Plant	35,558	46,827	31.6
Fire Department	14,480	12,798	-10.4
Sewer Department	2,570	7,938	209.0
Other Expenditures	<u>11,471</u>	<u>12,314</u>	<u>7.4</u>
All Expenditures	\$360,192	\$351,945	70.0%

Source: City Audits and City Treasurer.

During this period of Base and City expansion it is surprising that the Fire and Police Department Expenditures have not increased appreciably. The local police force in 1958 was at the same level of staffing as in 1948. At that time there were nineteen members in the police force. However, there are also regular military police patrols in the City and surrounding areas. The Fire Department, with ten pieces of equipment, is a voluntary system. There are fifty active members and a total membership of one hundred.

This Department serves Dover and the surrounding communities exclusive of the Air Base which has an extensive fire department trained for crash and rescue work involved in flight operations.

The City Administration has grown appreciably during the past ten years. However, major growth has been confined to the utility services, which are basically self-supporting. The Air Force as a prime customer of the City's power and electric service contributes appreciably to the excellent revenue position of that Department. On the other hand the new housing developments on the outskirts of the City, while necessitating expansion in the early days, now form a substantial portion of the utility consumers. The ability of the City to expand its services beyond the city limits and to make these utilities financially successful has contributed greatly to the sound economic base on which the City's governments can plan in the years ahead.

D. Transportation

1. Traffic Patterns. Transportation in the Dover area is mainly a matter of utilization of the excellent highway system permeating the countryside. Although the Air Force has added the factor of air transportation to the over-all transportation system, it has not influenced local transportation patterns in this respect, except of course to increase the vehicular traffic around the Base Area.

Except for the fact that an excellent highway system already existed in the area, the influence of the Air Force's mobile population might have caused traffic chaos. At present, except for the congested area around Loockerman Street in Dover, the major traffic arteries outside of Dover are capable of handling the heavy loads to which they are subjected, with a minimum of congestion.

2. Traffic Volumes. Traffic Volumes for both 1950 and 1960 for the main roads leading from the Air Base are indicated on Map #1. The same figures for selected approaches to the Base are tabulated in a more comprehensive manner below. This Table demonstrates the great impact of the Air Base as a generator of traffic.

The importance of Dover to the Air Base is seen by the traffic heading North (Pt. A) along U.S. Route 113, which is more than double that going South. If the through traffic were removed from the total count, this proportion of traffic would be even greater.

Table 35

TRAFFIC VOLUMES AT SELECTED POINTSDOVER AIR FORCE BASE - 1950-1960

<u>Type</u> <u>Position</u>	<u>1950</u> <u>A&B</u>	<u>1960</u> <u>A</u>	<u>1960</u> <u>B</u>	<u>1950</u> <u>C</u>	<u>1960</u> <u>C</u>
Commercial					
Busses	4	58	13	3	45
Panel and Pickup	207	632	314	40	156
Single Unit	203	867	466	33	142
Tractor Trailer, etc.	<u>243</u>	<u>558</u>	<u>497</u>	<u>2</u>	<u>4</u>
Total Commercial	<u>657</u>	<u>2,115</u>	<u>1,290</u>	<u>78</u>	<u>347</u>
Passenger					
Local	1,110	6,664	3,027	166	2,679
Out-of-State	<u>513</u>	<u>5,910</u>	<u>1,977</u>	<u>9</u>	<u>1,424</u>
Total Passenger	<u>1,623</u>	<u>12,574</u>	<u>5,004</u>	<u>175</u>	<u>4,103</u>
Total	2,280	14,689	6,294	253	4,450

Source: Planning Division, State Highway Department, Dover, Delaware.

The largest percentage increase in traffic during the ten-year period is to the west of the Base along Lebanon Road. From a slightly used road in 1950, it now has a traffic volume almost as great as that traveling South on Route 113. At the fork at Lebanon, the traffic splits, and approximately half heads North and the other South. This gives some indication of the distribution of personnel in the surrounding area. The north fork is used by those proceeding to the Kent Acres or Rodney Village developments. The road to the South is used as a more

easily traveled road to Camden and Wyoming and the numerous small communities which lay to the Southwest.

The great amount of local traffic generated by the Air Base and the increased population in the Dover area can be seen by comparing the changes in traffic volumes as indicated on Map #1. Route 13, the main North-South traffic artery of the State is seen to have had a volume increase of 24 percent on its southernmost leg in Kent County, while the traffic on its northernmost leg has increased by 35 percent. However volume increases of several hundred percent are readily observable on the main roads around the Air Base and the City.

The City's traffic problems have been greatly relieved by the introduction of a one-way street system and by widening and improving several main arteries. One saving factor for the City was the construction of the Dover Bypass (Rt. 13, see Map #2-D) which was completed in 1952. The road presently has a volume of 12,000 vehicles per day. Where Rt. 13 joins Rt. 113, the traffic volume sometimes goes as high as 24,000 vehicles per day.³⁰ However with a design capacity of 30,000 vehicles, no present expansion is required. Route 113 from Dover to the Air Base was improved to a dual-lane highway in 1959 to handle the increased volume of traffic generated by the Air Base.

Highway travel throughout this area becomes more

³⁰Raymond and May, op. cit., II, 15.

important each year. At present, there is a proposal to construct a limited access by-pass to the West of the City. Also with the opening of the Cape Charles-Norfolk tunnel-bridge in the near future, traffic along Route 13 is expected to increase by several thousand cars a day. However the effects of this increase will be felt more in the type of development which will take place along the highway edges, than to any major changes required in the present highway system.

The greatly increased volume of truck traffic along Route 113 as seen in Table 35, can be directly attributed to the presence of the Air Base. This is to be expected, so when it is realized that no rail spur has been run into the Base. As a result practically a trainload of cargo and supplies must be transferred daily from the rail siding in Dover to the Air Base by truck.

3. Modes of Transportation. Railway service into Dover is practically nominal. There is a daily freight North and South and minimal passenger service. Passenger service has dropped off from four trains daily in 1948 to one daily as of 1958.³¹ Dover's dependence on the highway as the sole means of transportation was increased with the closing of the Allegheny Airlines Service at the Air Base in 1959. However adequate service is available at the New

³¹Industrial Department, Delaware State Chamber of Commerce, Industrial Survey of the State of Delaware (Wilmington, Delaware State Chamber of Commerce, 1960), p. 15.

Castle County airport, forty miles to the North.

The importance of the auto as the prime means of passenger transportation is borne out in the following Table. Table 36 contains a summary of the means of transportation for getting to work as compiled in the 1960 census tabulation. As can be seen in the Table, means of transportation other than auto or foot transportation are fairly

Table 36

MEANS OF TRANSPORTATION TO WORK

KENT COUNTY - 1960

	<u>Number</u>	<u>%</u>
Private Auto or Car Pool	17,650	70.0
Railroad, Subway or Elevated	12	
Bus or Streetcar	256	1.0
Walked to Work	3,728	14.8
Worked at Home	1,877	7.5
Not Reported	<u>1,688</u>	<u>6.7</u>
Total	25,211	100.0

Source: U.S. Bureau of the Census
 U.S. Census of Population: 1960.
 General Social and Economic Characteristics
 Delaware Final Report PC(1)-9C

non-existent. There is no local public bus transportation. The Base runs an hourly shuttle bus but aside from taxis, all local transportation must be by automobile.

The increased use of automobiles is also reflected in Figure 15 which shows the increase of motor vehicle registrations in Kent County during the 1950-1961 period.

The influence of the Air Base is seen in Figure 15 by the steep climb from 1954 to 1956. Table 37 shows that over one-fifth of the State's motor vehicle registrations are in Kent County. The per capita passenger vehicle registration for Kent County is one per 2.7 persons while statewide it is only one for every 3.45 persons.

All of the above information on the Dover transportation system points out one essential thing. Dover is joining that ever increasing number of cities totally dependent on the private automobile as a means of passenger transportation. Dover is also heavily committed to the truck as a prime means of moving goods. With this dependence on motor vehicles the Dover area must be careful to keep pace with the excellent road system now existing.

Table 37
MOTOR VEHICLE REGISTRATIONS AS OF JULY 1
FOR DELAWARE AND ITS COUNTIES
1940-1961

		<u>Kent</u>	<u>New Castle</u>	<u>Sussex</u>	<u>Total</u>
1940	Passenger				60,450
	Commercial				14,712
	Total				75,162
1945	Passenger	12,693	30,311	10,863	53,867
	Commercial	3,584	5,446	3,857	12,887
	Total	16,277	35,757	14,720	66,754
1950	Passenger	14,520	47,133	16,095	77,748
	Commercial	4,518	8,475	5,404	18,397
	Total	19,038	55,608	21,499	96,145
1952	Passenger	16,482	56,082	17,458	90,022
	Commercial	5,284	9,882	6,197	21,363
	Total	21,766	65,964	23,655	111,385
1953	Passenger	18,082	61,028	17,873	96,983
	Commercial	5,818	10,975	6,393	23,186
	Total	23,900	72,003	24,266	120,169
1954	Passenger	18,879	64,567	18,694	102,140
	Commercial	6,262	11,713	6,697	24,672
	Total	25,141	76,280	25,391	126,812
1955	Passenger	21,120	69,016	19,381	109,517
	Commercial	7,338	13,198	7,192	27,728
	Total	28,458	82,214	26,573	137,245
1956	Passenger	23,340	72,626	19,566	115,532
	Commercial	8,514	15,150	7,612	31,276
	Total	31,854	87,776	27,178	146,808
1957	Passenger	22,831	75,272	19,934	118,037
	Commercial	9,091	16,803	8,042	33,936
	Total	31,922	92,075	27,976	151,973

Table 37 (Continued)

MOTOR VEHICLE REGISTRATIONS AS OF JULY 1

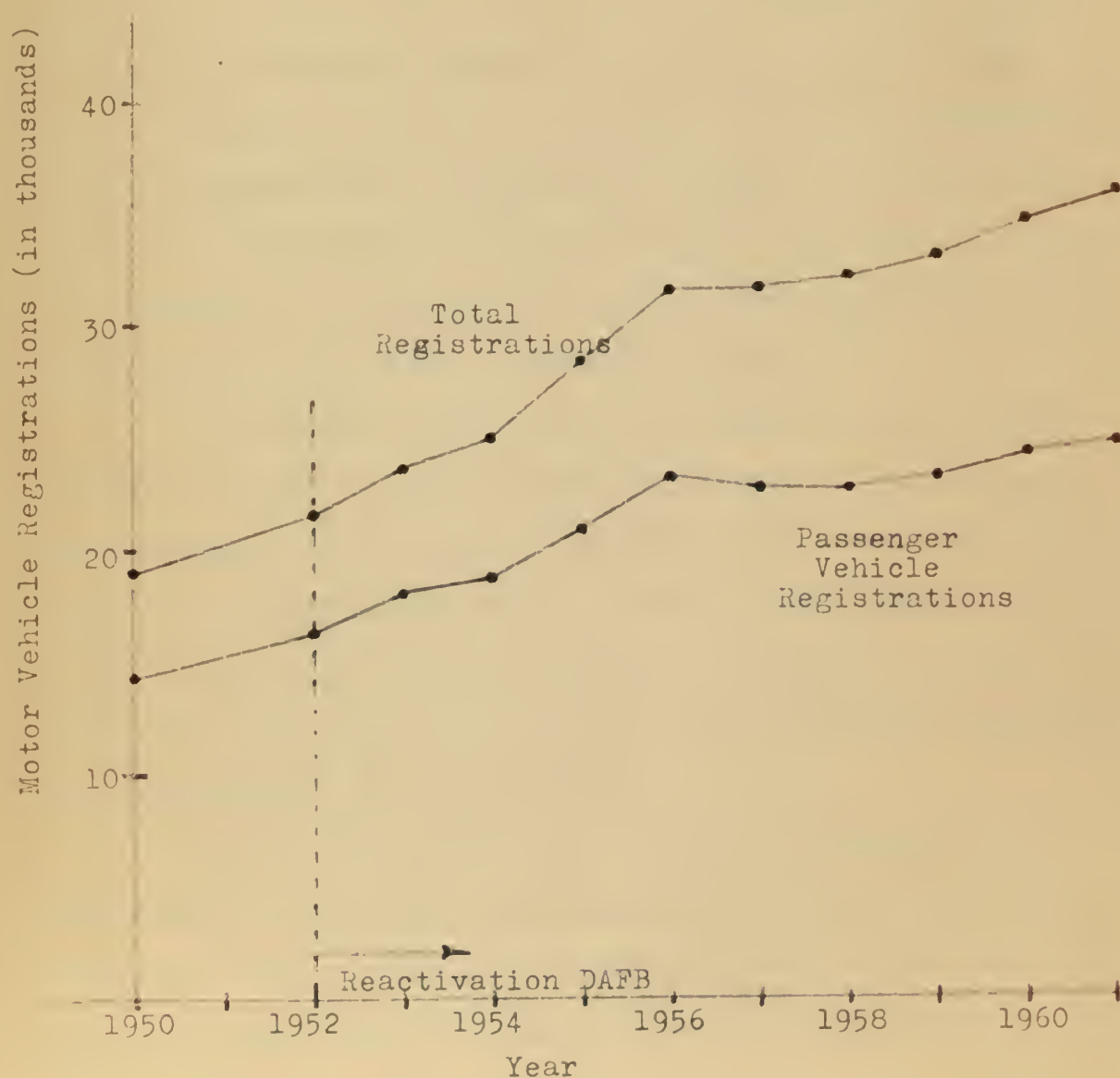
FOR DELAWARE AND ITS COUNTIES

1940-1961

		<u>Kent</u>	<u>New Castle</u>	<u>Sussex</u>	<u>Total</u>
1958	Passenger	22,592	78,873	20,863	122,328
	Commercial	9,562	19,033	8,692	37,287
	Total	32,154	97,906	29,555	159,615
1959	Passenger	23,351	81,503	21,055	125,909
	Commercial	10,033	20,621	8,959	39,613
	Total	33,384	102,124	30,014	165,522
1960	Passenger	24,359	84,067	21,286	129,712
	Commercial	10,537	22,519	9,398	42,454
	Total	34,896	106,586	30,684	172,166
1961	Passenger	24,991	88,110	22,141	135,242
	Commercial	11,048	24,861	9,900	45,809
	Total	36,039	112,971	32,041	181,051

Source: Planning Division, State Highway Department, Dover, Delaware

Figure 15
MOTOR VEHICLE REGISTRATIONS
KENT COUNTY, DEL.
Note: See Table 37 for Detailed Data.



E. The Planning Problem

1. Dover's Redevelopment Plan. Planning in Dover is said to have started with William Penn. From the predominant use of the original gridiron pattern throughout the years this may be a basically true statement. Like Penn's planning, the "planning" of Dover until 1959 was basically a one man job. The continuity which existed in the various projects, passed on by the City Council from year to year, was provided by someone in the city-manager's office designated as the planning officer. In 1959, however, the Dover Planning Commission was established by the City Council "to conduct studies and research leading to a comprehensive plan for the future of Dover."³²

To accomplish the technical steps in the planning process the City of Dover engaged the firm of Raymond and May Associates of Pleasantville, New York, to conduct a basic survey of the Community and to develop a comprehensive plan. In 1961 the consultant had completed his work, and the comprehensive plan was adopted by the Dover Planning Commission and submitted to the City Council.

Much of the basic research used in developing the comprehensive plan has also been used as source material throughout this report. In determining where Dover was "to go," the planners had to determine what had happened in the

³²Haman, W.E., Mayor for the City Council of Dover, in a letter to the Citizens of Dover, June, 1961.

past. Throughout the planning reports the effects of the Air Base were to be seen again and again. Dover had survived the impact of rapid expansion, but to insure that future growth would be for the benefit of the entire community, certain planning processes had to be established.

Briefly the Development Plan called for the establishment of a zoning ordinance, a Housing Code and an Urban Renewal Program guided by a prepared "Land Use Plan." A survey had been made of existing municipal services and the Plan recommended certain improvements to the street, water and sewer systems. To insure continued growth of the City's historic role as a retail trade center, the plan called for the redevelopment of the downtown business district. This redevelopment project, called the Dover Green - West Renewal Project, would provide for such items as a pedestrian shopping mall, a Civic Center and an "Historic District." The Plan is thus seen to be broad-based in scope and comprehensive in its objectives.

2. Lack of Planning Outside of the City Limits.

The Development Plan also advocates the annexation of certain of the areas surrounding the City. At such time as annexation becomes a reality, it is intended that the plan would be broadened in its scope to include the additional area. At present, however, the lack of a planning authority with jurisdiction over the area between the City and the Base poses a problem, which although not serious today could affect the operations of the Base in the future.

As previously explained development has concentrated to the western side of "the Complex." (see page 9). Today this trend still persists but as desirable land becomes more scarce, a shift to the East might be expected. The concern of the Air Force about lack of planning on the County level and possible encroachment on the Base itself was an issue raised by the first Base Commander. In January, 1953, the Wilmington Morning News in an editorial concerning the newly reactivated Dover Air Force Base had this to say about the lack of planning in Kent County.

We sympathize with the plight of a ranking officer on a military station who has to tell the citizens of his adopted community things which do not make good listening. At the same time we applaud the fellow who does so.³³

The rest of the editorial described the Base Commander's plea that the area around the ends of the runways should be banned for housing. The article was also undoubtedly a means of chiding Kent County for its lack of comprehensive planning which New Castle County to the North had in its long established New Castle County Regional Planning Council. Luckily the houses have failed to materialize but then too, so has any planning.

At present there are several movements for a more comprehensive type of planning in Kent County. Enabling legislation (SB 353) to provide for county planning and zoning regulations, has been introduced before the State

³³Wilmington Morning News, 12 January, 1953, p. 14.

Legislature.³⁴

There is also the recently authorized State Planning Commission which may one day step in and fill the gap in planning outside of the municipalities. While the need to-day for planning is evident to many, it could certainly become a major problem to all concerned, in the future.

³⁴Vapaa, G.K., Personal letter dated April 20, 1962.

F. Social Environment

1. Community Participation. During the past decade countless thousands of servicemen and their families have arrived and departed from the Dover scene. The study of the sociology of the "military migrant" is one that is seriously lacking. Unfortunately in the small amount of time available for field work in connection with this thesis, it was impossible for the author to obtain more than a cursory knowledge of the social relationships and attitudes existing in either the military community at the Air Base or in the civilian community in Dover.

However, several of those interviewed had certain comments on the military's participation in the social life of the Dover community. This participation seems to be concentrated mainly in the religious affairs of the community. Many of the churches of the community have undertaken expansion programs or built completely new facilities in the past ten years. Military families were said to be active in church work, participating as Sunday School teachers and in several instances mentioned as members of the vestry.

It was learned that military men were members of many of the local service clubs as the Lions, the Rotary Club and the Chamber of Commerce. Because these clubs do not keep their roles other than by name, it was impossible however, to gauge the amount of military participation

in their activities. By the same token the civilian community renders service to the military element by organizing and participating in such activities as the local United Services Organization.

Others interviewed mentioned military personnel as engaged in work with the local Boy Scout troops, the Red Cross and the Parent Teachers Association. Civilians employed at the Base, because of their permanent residence in the community, were not necessarily singled out because of their connection with the Base, and thus their degree of participation could not be determined.

Apparently for the Air Force families in the Dover Area, whose tenure in the community is relatively short, the most common access into community social life has been through those associations affiliated with a church and those connected with their children. They are also heavily represented in such groups as the Rodney Village Civic Association.

2. Benefits to the Community. Several of those interviewed described in detail the benefits accrued to the community because of the reactivation of the Air Base. Others expressed some doubt of any benefit, because of the ever present danger - at least in their minds - that the Base would shut-down and Dover would suffer an economic crisis. On the critical side several also considered the Air Force's building of government housing as being the cause of the deterioration of the Capitol Green development.

The problem of unemployment should the Air Force cut back operations was also mentioned several times.

One instance of a positive benefit was cited by Mr. F.T. Mott, the Kent County Director of the U.S. Department of Agriculture, Soil Conservation Service. Mr. Mott stated that employment at the Air Base of several farmers living on marginal lands had given them available funds to carry out conservation work. As a result their farms were now becoming more productive and thus were an added asset to the community.

3. The Dual-Community Attitude. In the Development Plan for Dover, the existence of Base housing, shopping and community facilities are cited as being "good examples" of the federal government's policy to lessen the impact of a changed requirement for a certain installation on the civilian community.³⁵ There are those in the Dover community who would disagree most heartily with this comment. The reason for this is that while such a policy makes the community less dependent on the military facility, it also tends to make the facility less dependent on the community.

Dover Air Force Base is now in the process of becoming a self-sufficient facility. As more personnel are housed in government quarters; as more recreational and social facilities are developed on the Base; there tends to grow up a completely separate military community.

³⁵Raymond and May, op. cit., I, 13.

Several of those interviewed, while commenting favorably on the participation of military families in community affairs, stated that there had seemed to be a definite decrease in such activity with the establishment of government quarters.

Another aspect of the government quarters availability is that many families have to reside in the Dover area six months to a year before quarters become available. As a result they will not establish ties in the local community as readily as if they were to settle there permanently during their stay at Dover. Even the children who start school in town realize that the move into quarters will mean a change of school.

One last aspect of the social changes - or resistance to change as the case may be - is that Dover, even after ten years, has a short history as a part of a military complex. Dover has always been known for its quiet, reserved way of life. The presence of the young Air Force families has done much to disrupt the social patterns of the past. Many of the changes in the way of life necessitated by an expanding population are not understood by the old residents. It is only with time that the community will be able to fully adjust to the major changes which have occurred during the last decade.

SUMMARY AND CONCLUSIONS

A. Patterns of Growth

To summarize the impact which the Dover Air Force Base has caused in the surrounding area during the last ten years is indeed next to impossible. Nor is it possible to merely state that Dover has just grown, because that would not reflect the patterns of growth. In some instances the impact has been absorbed by Dover and the surrounding area with a minimum of disruption. In other cases such as the housing problem, local efforts were not enough, and it became necessary for the Air Force to take an active hand in the situation.

During the early days of the Base's opening in 1952, the military officials made repeated attempts to warn the local citizens of what the impact would be. It may be, however, that a community must experience a period of rapid expansion before the various elements of the community are able to grasp its significance. At any rate certain groups seemed to respond immediately, while others sat back and waited. Many of the latter are realizing only today the opportunities they have missed.

One of the growth patterns discussed was in the field of trade. Although all businesses in and around Dover seem to have made gains from 1948 to 1958, some have grown swiftly while others have merely "held their own." The shift of business in many instances from the Loockerman

Street district to other centers outside of the City has been caused by the merchants' failure to modernize their in-town facilities. The vast influx of Air Force business has given them a sense of security, which in the competitive economy that seems to be growing in the area, may prove to be false. On the other hand, other business groups, especially in the service trades, have answered the demands of the increased population and are flourishing.

B. The Problem Areas

The main problems which have existed in Dover during the last decade could be said to be concentrated in three areas. These areas would be in housing, educational facilities and planning. In all three instances the community has reacted differently, and therefore it might be well to again review these problem areas.

The housing situation in Dover was not considered critical before the reactivation of the Air Base in 1952. However, with a very small back-log of available housing, the demand soon swamped the market. Several housing developments, built on what has been described as a minimal basis, were constructed in the early days of the Base. However, this housing did not fill the demand for what was really needed - relatively low and medium cost rental housing.

Because of the lack of planning - our third problem area but one which affects all others - and zoning

ordinances outside of the City, the developers did not have to be concerned with the standards already existing in Dover. While the City was willing to extend its revenue-producing utilities to these areas, it seemed to lack the foresight for realizing the need of controlling construction in these areas.

Although there were frequent editorials concerning the need for low-rent public housing in the local papers, it is not known whether this would have been the best solution to the problem. One surprising feature of local housing developed during the period is the lack of a sizeable apartment project. It does not appear that the City ever actively encouraged the development of this type of housing. If such a source of housing had been available it is doubtful that the need for government quarters would have existed. In the same respect, apartment blocks could have easily been developed inside the City, thereby adding to the municipal tax base.

While the problems of the school systems have been great, the school administrators seem to have responded in a most satisfactory manner. The Dover School District has used this period as a means of expanding and modernizing its facilities. The method of State support of Public Schools in Delaware has meant that Federal Grants could be used for the latter purposes, and thus eliminated the need for a major increase in school taxes to cover the costs involved.

The Caesar Rodney District, because of its more gradual build-up, was not able to cope with the additional loading of its existing facilities with the children of families living in quarters. In this respect it was necessary for the Air Force to intervene and provide a school for these children. While the creation of a Base School has eased the State's burden for contributing to the support of this school, it has also prevented the community from acquiring an additional school at relatively little cost. This was due to the fact that Federal funds in the amount of ninety-five percent of the construction costs could have been made available.

Perhaps in this instance a more satisfactory solution for the community as a whole would have been a re-districting measure, whereby the Base housing area would have been located in the Dover School District. Again the now proposed consolidation of the two Districts if conceived at an earlier date, would have made a more flexible system available to cope with the problems of expansion.

It is in the field of planning however that the greatest need still remains. While right from the start of Base operations, the Base officials preached the need for planning, it may have been that they were speaking to the wrong groups. Most of the requests for planning seem to have been directed to the Dover civic groups. As the recent Development Plan shows, Dover can plan no further than its city limits. With the Air Base three and a half

miles away, no degree of control in Dover - except perhaps limitations on skyscrapers - could fill the needs of the Air Force.

County government in Delaware represents a strong political force, but is relatively weak in its administrative functions, especially in the field of planning. The Counties have directed the planning function to the local municipalities, and when an institution such as the Dover Air Force Base generates a need for planning outside of the city, there is no agency with adequate responsibility. The Air Base has positive control over its internal growth, unlike the cities, but it also has a vital interest in growth around its periphery. It is interesting to note that recent interest in planning outside of Dover is coming from the agricultural groups - groups which are usually opposed to broad-base planning.

C. The Future

The City of Dover has benefited greatly from the expansion of the Air Base, both in the economic and the social welfare of the community. The constant emergence of new people, with varied ideas and interests, has brought a revitalization of life to the community. Today Dover is at the crossroads. It has experienced growth and for the most part seems to have found the new era to its liking. Yet local officials and businessmen are beginning to realize that the community cannot always count on the

existence of the Air Base. While it is felt that the Air Force will be at Dover for many years to come, it is also realized that Dover's economic base, especially in the industrial field, must be broadened to survive the type of impact opposite to the one described herein - the impact of contraction. By expanding its overall economy Dover hopes to be able to meet any temporary cut-backs and continue its growth as a modern American city.

APPENDIX A

Table A-1

POPULATION GROWTH

DOVER, KENT COUNTY, DELAWARE AND THE UNITED STATES

1850-1960

	<u>Dover</u>	<u>Kent Co.</u>	<u>Delaware</u>	<u>United States</u>
1850	Est. 500	22,816	91,532	19,553,068
1860	1,289	27,804	112,216	26,922,537
1870	1,913	29,804	125,015	33,589,377
1880		32,874	146,608	43,402,970
1890	3,061	32,664	168,493	55,101,258
1900	3,329	32,762	184,735	66,809,196
1910	3,720	32,721	202,322	81,731,957
1920	4,092	32,023	223,003	94,820,915
1930	4,800	31,841	238,380	110,286,740
1940	5,517	34,441	266,505	118,214,870
1950	6,223	37,870	318,085	134,942,028
1960	7,250	65,651	446,292	179,323,175

Source: U.S. Bureau of Census and Raymond and May I, Census of Population: 1960, p. 15.

Table A-2
POPULATION DOVER AIR FORCE BASE
1951-1962^a

	<u>Military Personnel</u>	<u>Civilian Employees</u>	<u>Dependents</u>	<u>Total</u>
1951	1	11	NA	12
1952	693	146	500 Est	1,339 Est
1953	1,017	190	1,000 Est	2,207 Est
1954	3,989	308	4,500 Est	8,797 Est
1955	4,800	800	6,700 Est	12,300 Est
1956	6,025	1,005	7,500 Est	14,530 Est
1957	6,650	1,050	7,800 Est	15,500 Est
1958	6,961	1,047	8,000 Est	16,008 Est
1959	7,265	1,057	8,250 Est	17,072 Est
1960	6,728	1,065	9,640	16,368
1961 ^b	8,700	1,158	14,050	23,908
1962 ^b	8,797	1,155	14,049	24,001

^aPopulation as of December of each year.

^bFebruary, 1962

Source: Dover Air Force Base Official Histories, Base Civil Engineer, and Press Releases, Office of Information 1607th Air Transport Wing(h), MATS.

Estimated figures for dependents based on news releases, housing surveys and AF Form 132 - Status of U.S.A.F. Family Housing (Table 24).

Table A-3

POPULATION BY AGE AND SEX

DOVER AND KENT CO., 1940 to 1960^a

	1940 Census			1950 Census			1960 Census ^b					
	Kent Co.		Dover	Kent Co.		Dover	Kent Co.		Dover			
	M	F	M	F	M	F	M	F	M	F		
Under 5	1,392	1,356	210	177	2,037	1,841	270	261	4,775	4,557	390	387
5-9	1,371	1,332	180	176	1,666	1,532	226	198	3,512	3,335	314	352
10-14	1,579	1,468	159	210	1,463	1,398	205	218	2,874	2,570	285	248
15-19	1,579	1,414	201	222	1,264	1,350	208	244	2,349	2,109	282	294
20-24	1,410	1,410	227	251	1,274	1,390	202	240	3,807	2,612	297	261
25-29	1,301	1,263	229	257	1,382	1,420	215	251	3,177	2,513	266	220
30-34	1,216	1,146	224	249	1,372	1,363	244	240	2,399	2,266	212	222
35-39	1,157	1,109	207	219	1,294	1,313	216	247	2,258	2,110	226	248
40-44	1,062	1,007	186	199	1,209	1,162	221	238	1,958	1,725	234	243
45-49	1,049	989	176	183	1,170	1,135	214	229	1,476	1,463	200	218
50-54	970	960	132	147	1,065	1,035	187	223	1,289	1,245	184	241
55-59	850	890	135	157	957	879	150	156	1,164	1,160	163	180
60-64	833	760	102	133	844	850	102	140	903	954	137	179
65-69	722	646	110	104	743	808	116	141	849	910	119	174
70-74	519	465	64	88	617	568	75	99	659	692	83	103
Over 75	669	634	84	119	730	739	94	153	931	1,050	102	186
Total	17,802	16,839	2,626	2,891	19,087	18,783	2,945	2,310	34,380	31,271	3,494	3,756

^aSource: U.S. Bureau of Census, U.S. Census of Population 1940, 1950 and 1960.^bPopulation includes military personnel and dependents residing in locations shown.

Table A-4

RESIDENCE SURVEY PERSONNEL ASSIGNED TODOVER AIR FORCE BASEApril, 1962Base Housing

	<u>Survey Total</u>	<u>Actual Total</u>
BKS and BOQ	528	3,342
Base Housing	1,170	1,255

Dover and Suburbs

	<u>Mil</u>	<u>Civ</u>	<u>Tot</u>
Dover incl RFD	564	307	871
Dover Trailer Parks	173	15	188
Rodney Village	129	23	152
Capitol Park	132	26	158
Capitol Green	50	9	59
Kent Acres	67	13	80
Edgehill	38	19	57
Briar Park	31	15	46

Communities with 10 or More DAFB-Connected Residents^a

Camden (4)	87	47	134
Bowers Bch (12)	11	7	18
Cheswold (14)	8	7	15
Clayton (11)	4	9	13
Felton (11)	21	40	61
Frederica (10)	67	30	97
Georgetown (33)	-	11	11
Greenwood (25)	1	14	15
Harrington (17)	10	33	43
Hartley (12)	12	15	27
Leipsic (14)	2	8	10
Lewes (37)	-	28	28
Lincoln (20)	2	9	11
Little Crk (5)	11	6	17
Magnolia (7)	69	27	96
Middletown (25)	3	7	10

Table A-4 (Continued)

RESIDENCE SURVEY-PERSONNEL ASSIGNED TO
DOVER AIR FORCE BASE
April, 1962

	<u>Mil</u>	<u>Civ</u>	<u>Tot</u>
Milford (17)	44	86	130
New Castle (43)	6	11	17
Smyrna (13)	39	62	101
Wilmington (48)	4	26	30
Woodside (7)	10	5	15
Wyoming (4)	51	42	93
Greensboro, Md. (18)	1	10	11

Other Delaware CommunitiesOther Maryland Communities

	<u>Mil</u>	<u>Civ</u>	<u>Tot</u>		<u>Mil</u>	<u>Civ</u>	<u>Tot</u>
Bridgeville (30)	-	6	6	Ridgely (26)	-	11	11
Rehoboth (41)	2	7	9	Cambridge (47)	1	1	2
Seaford (37)	-	5	5	Chesapeake Cty (34)	-	3	3
Townsend (21)	2	3	5	Northeast (49)	-	2	2
Viola (8)	2	5	7	Marydel (13)	3	3	6
Newark (39)	5	4	9	Denton (30)	-	4	4
Kenton (14)	-	1	1	Goldsboro (18)	-	8	8
Rising Sun (2)	6	-	6	Galena (35)	-	1	1
Houston (21)	2	7	9	Betterton (32)	-	1	1
Ellendale (25)	-	3	3	Berlin (61)	1	-	1
Del. City (35)	-	1	1	Barclay (20)	-	1	1
Milton (30)	-	6	6	Greenshore (22)	-	5	5
Marydel (13)	2	3	5	Sudersville (23)	2	1	3
Harbeson (34)	-	1	1	Millington (28)	1	3	4
Canterberry (8)	2	-	2	Baltimore (80)	-	1	1
Kirkwood (32)	-	1	1	Crumpton (24)	-	3	3
Farmington (20)	-	4	4	Easton (42)	1	1	2
Odessa (25)	-	2	2	Elkton (39)	1	2	3
Woodland Bch (14)	-	1	1	Templeville (11)	-	1	1
Laurel (44)	-	3	3	Chestertown (32)	-	3	3
Millsboro (42)	-	2	2	Delmar (51)	-	3	3
Slaughter Bch (21)	1	-	1	Henderson (18)	-	2	2
				Hurlock (44)	-	1	1
				Ingleside (27)	1	-	1
				Snow Hill (77)	-	1	1
				Charleston (54)	-	1	1
				Queen Anne (31)	1	-	1
				Salisbury (59)	-	1	1
				Warwick (26)	-	1	1
				Other			
				(Pa., Va. & N.J.)	8	5	13

^aNumbers in parentheses indicate road mileage from DAFB to location indicated.

Source: Office of Information 1607th Air Transport Wg(H) MATS, Dover Air Force Base, Delaware.

Table A-5

COVERED UNEMPLOYMENT^a

DELAWARE AND KENT COUNTY, 1950-1959

Delaware												
JAN.	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	JAN.	
FEB.	3859	1961	1850	1708	3902	4431	2525	3482	5352	6351	FEB.	
MAR.	3435	1488	1719	1873	5361	4475	2397	4047	6031	8757	MAR.	
APR.	3700	1087	1543	1429	4633	3974	2442	3790	6115	4943	APR.	
MAY	2681	1002	1406	944	3981	2922	1966	3083	6482	3637	MAY	
JUNE	2439	1201	996	861	3290	2056	1874	2560	6442	3222	JUNE	
JULY	1918	1159	814	905	2794	1538	1708	2314	5206	2054	JULY	
AUG.	1920	1127	1803	884	3222	1550	1797	3003	5314	2246	AUG.	
SEPT.	1155	1429	1367	786	3128	1344	1790	2429	5632	3971	SEPT.	
OCT.	930	1142	690	1348	3149	1154	1558	2839	3968	3482	OCT.	
NOV.	1119	1029	564	1411	2969	1344	2373	2326	3035	2740	NOV.	
DEC.	808	894	778	2029	2881	1057	1539	2300	3173	4498	DEC.	
TOTAL	1388	1574	1435	2864	3245	1700	2932	4032	4866	5672	TOTAL	
Kent County												
JAN.	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	JAN.	
FEB.	432	214	178	248	427	499	349	564	1062	878	FEB.	
MAR.	386	214	216	292	663	557	401	684	1077	877	MAR.	
APR.	560	148	186	232	543	441	369	616	924	690	APR.	
MAY	246	329	152	108	419	302	302	495	802	456	MAY	
JUNE	355	350	99	82	307	234	267	308	680	286	JUNE	
JULY	310	254	80	71	233	165	176	311	477	203	JULY	
AUG.	395	163	113	107	446	176	200	461	472	250	AUG.	
SEPT.	89	77	46	81	347	205	196	363	453	258	SEPT.	
OCT.	62	56	29	93	305	107	139	319	347	406	OCT.	
NOV.	101	70	31	142	314	92	199	295	230	401	NOV.	
DEC.	109	64	52	163	382	145	217	345	295	519	DEC.	
TOTAL	183	141	269	274	414	258	372	493	504	636	TOTAL	

^aNumber of people collecting unemployment benefits for the week of the 15th of each month.

Source: State of Delaware, Unemployment Compensation Commission.

APPENDIX B

INTERVIEWS AND CORRESPONDENCE

Maj. H.E. Brown, Information Officer. Hq. 1607th Air Transport Wg(H) MATS, Dover Air Force Base, Delaware. 26-28 March, 1962 and 26-27 April, 1962.

Mr. C.L. Daly, Office Manager, Planning Section, State Highway Department, State of Delaware, Dover, Delaware. 26 April, 1962.

Mrs. G.W. Day, Base Historian, Dover Air Force Base. 26-28 March, 1962.

Mr. E.C. Golder, Secretary-Manager, Greater Dover Chamber of Commerce, Dover, Delaware. 27 March, 1962.

Mr. D.M. Green, Superintendent of Schools, Dover Special School District, Dover, Delaware. 26 April, 1962.

Mr. Lamb, Secretary, City Planning Commission and Dover Housing Authority, Dover, Delaware. 26 March, 1962.

Mr. W.H. McFadden, Civilian Personnel Officer, Dover Air Force Base, Dover, Delaware. 27 March, 1962.

Mr. H.C. McSherry, Publicity Director, State Highway Department, State of Delaware, Dover, Delaware. 26 April, 1962.

Mr. W. H. Moore, Dover Manager, Diamond State Telephone Company, Dover, Delaware. 26 April, 1962.

Mr. F.T. Mott, Work Unit Conservationist, Soil Conservation Bureau, U.S. Department of Agriculture, Dover, Delaware. 27 April, 1962.

Mr. F.P. Neylan, City Clerk, City of Dover, Delaware. 26 March, 1962.

Mr. H.R. Schmidt, Maintenance Engineer, Base Civil Engineer's Office, Dover Air Force Base, Delaware. 27 April, 1962.

Mrs. V.E. Shaw, State Archives, Dover, Delaware. 28 March, 1962.

Major Correspondence

Mr. J.A. Bradshaw, Chairman-Executive Director,
State of Delaware, Employment Security Commission, Wilmington,
Delaware. 12 April, 1962.

Mr. T.W. McKenna, Commercial Sales Manager, Delaware
Power and Light Company, Wilmington, Delaware.
10 April, 1962.

Mr. G.K. Vapaa, Kent County Agricultural Agent,
Delaware Extension Service, University of Delaware School
of Agriculture, Dover, Delaware. 20 April, 1962.

Mr. G.F. Vaughn, Agricultural Economist, University
of Delaware, School of Agriculture, Newark, Delaware.
11 April, 1962.

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- (31) U.S. House of Representatives, Eighty-second Congress, Hearings Before a Subcommittee of the Committee on Appropriations - First Session on Military Public Works Appropriations for 1952, (Washington, D.C.: U.S. Government Printing Office, 1951). xiii + 1436 p.
- (32) deVALENGER, L. and SHAW, V.E., (Editors), Ridgely Family Letters 1742-1899, (Milford, Delaware: Milford Chronicle Publishing Co., 1948), I. 349 p.
- (33) Newspapers. The Office of Information, 1607th Air Transport Wg(H) MATS, Dover Air Force Base, Delaware maintains a collection of newspaper clippings from the four Delaware papers with local distribution. At present, the three volumes of clippings available contain all information concerning the Air Base from 1952 to the present from the following newspapers:
Journal-Every-Evening, Wilmington, Del.
Morning News, Wilmington, Del.
Delaware State News, Dover, Del.
Dover Index, Dover, Del.

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Monterey, California



ROAD SYSTEM DESIGNATION
 UNITED STATES NUMBERED HIGHWAY
 STATE NUMBERED HIGHWAY
 ROAD MAINTENANCE NUMBER
 MISCELLANEOUS
 GRAVEL PIT
 1960 CENSUS INCORPORATED TOWNS
 POP. 1960
 NUMBERED TICKS INSIDE THE HEATLINE INDICATE THE 10,000 METER
 UNIVERSAL TRANSVERSE MERCATOR GRID, ZONE 18. THE LAST
 THREE DIGITS OF THE GRID NUMBERS ARE OMITTED.

MINOR CIVIL DIVISIONS
 TELEPHONE
 EXCHANGE AREAS
 ELECTRICAL
 SERVICE AREAS
 "THE COMPLEX"
 TRAFFIC COUNTS
 1960 ADT
 1950 ADT



BAY

BASE MAP #1 MAINTENANCE MAP KENT COUNTY DELAWARE

PREPARED BY THE
 DELAWARE STATE HIGHWAY DEPARTMENT
 PLANNING DIVISION
 IN COOPERATION WITH THE
 U.S. DEPARTMENT OF COMMERCE
 BUREAU OF PUBLIC ROADS
 SCALE
 SCALE RATIO 1:25,000
 0 1 2 3 4 MILES

REVISED JANUARY 1, 1962
 POLYCONIC PROJECTION



MAINTENANCE MAP KENT COUNTY DELAWARE

THESIS
W49

POINTS OF INTEREST

CAMDEN - C
DOVER AIR FORCE BASE
- DAFB
SUBURBAN DOVER - S
WYOMING - W
ND ABBREVIATION INDI-
CATES DOVER

Archives Bldg - 4D
Baseball - (DAFB) - 9F
Base Sch(DAFB) - 9F
Booker T. Washington Sch -
4B
Bus Terminal - 4C
Caesar Rodney Annex Sch -
(W) - 8AB
Caesar Rodney Sch(C) -
8AB
C of C Offices & Hotel - 4D
City Hall - 4D
Coly, Inc. (DAFB) - 2A

Dover Air Force Base
(DAFB) - 8, 9G
Dover High School & Cen-
tral Elementary - 3CD
East Beach(S) - 3D
East Dover Elementary
School(S) - 4EF
Elizabeth W. Murphy Sch
(DAFB) - 3, 4D
Gipha, H. B. Co(S) - 4E
Green, The - 4D
Hospital - 5D
Howell Pond(S) - 8B
Int. Lalex Plant(S) - 3D
Isaac Branch(S) - 8AC, TDE
Kent Co(S) - 5C
Legislative Bldg - 4D
Main Entrance(DAFB) - 9G
Moore's Lake(S) - 7CD-8D
Murphy, Elizabeth W. Sch
(DAFB) - 3, 4D
Parochial School - 5D
Pennsylvania R.R.(S) - 3, 6,
7B

Plaza, The(S) - 4D
Punchon Run - 6B-D
Rodney Village Shopping
Center(S) - 7, 8C
R & R Plant - 4D
St. Jones River(S) - 5, 7E-
7, 8F
Silver Lake(S) - 1, 2B-3C
Silver Lake Recreation
Area(S) - 3D
South Dover Elementary
School - 5D
Station - 5D
The Green - 4D
The Plaza(S) - 4D
Tidbury Creek(S) - 9E
William Henry High School
(S) - 4B
Wyoming Lake(S) - 8A
Wyoming Lake(W) - 8A
Wesley College - 3C

mapco® BASE MAP #2 OF DOVER 1961 AND VICINITY DELAWARE

COMPLIMENTS OF
FARMERS BANK
of the
STATE OF DELAWARE
ESTABLISHED 1807
MEMBER OF FEDERAL DEPOSIT INSURANCE CORPORATION

Map Index

DOVER & VICINITY

ND ABBREVIATION INDI-
CATES DOVER
CAMDEN - C
SUBURBAN DOVER - S
WYOMING - W

Acorn La(S) - 2E
American Av - 3C
Ann Av(S) - 2B
Appletree La(W) - 9A
Asbury Av(S) - 8C
Bank La - 4C
Bay Rd(S) - 2C, 4E, 6F
Bayard Av(S) - 4D
Beechwood Av(S) - 7D
Beechwood Ct - 7D
Boyd Cir(S) - 8D
Bradford - 3C, 5D
Briar La(S) - 10B
Broad Blv - 9A
Broad W(W) - 8A
Brown(S) - 2B
Brown - 3B
Budd - 4C
C - 4D
Caesar Rodney Av(W) - 9A
Camden Av(W) - 9A
Capitol Av(S) - 5F
Capitol Dr(S) - 4D
Carroll - 3C
Carroll(S) - 7C
Carver Rd(S) - 4B
Cecil - 3C
Cedar La(S) - 9B
Center(C) - 9B
Charles Dr - 6C
Charles Polk Rd(S) - 8C
Clara(S) - 3C

Clara St Ext - 3B
Clarence - 4C
College Rd(S) - 3A
Collins Dr(S) - 4D
Columbia Av - 3BC
Columbia Av Ext - 3B
Commerce E(C) - 9BC
Commerce W(C) - 9B
Congress Pl(S) - 8E
Cooper Rd(S) - 7CD
Court - 4D
Cowgills(S) - 4DE
D - 4D
Daniel Rodney Dr(S) - 7C
David Hall Rd(S) - 7C
Davis Cir - 4BC
Delaware Av - 3C
Division - 4C
Dogwood Dr(S) - 10B
Dover Cir(S) - 8F
Dover - 5C
Dupont - 4C
E - 4D
East Av - 4D
East Av(S) - 2C, 10B
Edgehill Av(S) - 3D
Edgehill Av(S) - 3D
Edgemont Av(S) - 3D
Edgewood Rd(S) - 7CD
Elm Ter - 4D
Evergreen Cir(S) - 5, 8D
Evergreen Dr(S) - 5E
Fairview Av - 3C
Federal - 4D
Forest - 4BC
Fox Rd(S) - 4F
Franklin(W) - 9A
Front(W) - 9B
Fullon - 3, 4C
Garden La(S) - 2C
Gibbs Dr - 4B
Glenwood Dr(S) - 10B
Gooden Av - 5B
Governor Blvd(S) - 6E
Governor - 3C

Governors Av S(S) - 7C
Governors Av Blvd - 2, 3C
Grant(S) - 9A
Green Hill Av(S) - 3D
Green Hill Rd(S) - 4D
Gunning Bedford Dr(S) -
7-8C
Halsey Rd(S) - 3D
Halsey Rd(S) - 3DE
Hartly Rd(S) - 4AB
Hazel Rd - 3C
Hazelville Rd(S) - 5A
Hearley Dr - 8C
Hickory(S) - 10B
Highland Av(S) - 8D
Highview Av(S) - 7D
Holly Dr - 5DE-6C
Hope - 5D
Howell(S) - 8C
Huntley Cir(S) - 6D
Irma - 4B
Janeka La - 5C
Jefferson Dr - 5C
John Clark Rd(S) - 7C
John Collins Cir(S) - 7C
Joshua Clayton Rd(S) - 7C
Kent Av(S) - 3D
Kent Av(S) - 4D
Kenton Rd(S) - 3, 4A
Kerbin - 4D
Kings Highway E - 3CD
Kings Highway SW - 4CD
Kirkwood - 3, 4C
Konschak Av - 5C
Lafferty La - 5F
Lake Dr(S) - 7D
Lake(W) - 8A
Lakeview Av(S) - 7C
Lakeview Dr(S) - 2C
Lakewood Pl - 3C
Laurel Dr - 5D
Layton Av(W) - 8, 9A
Legislative Av - 4D
Lincoln - 4B

Little Creek Rd(S) - 4EF
Lockerman Ct(S) - 3E
Lockerman - 4C
Lockerman E(S) - 3DE
Lockerman St Ext - 4D
Lotus - 5D
Lynnhaven Dr - 8C
Madison - 9BC
Main(NC) - 9BC
Main(NC) - 9BC
Main(S) - 9, 10B
Main St(S) - 9, 10B
Major Dr(S) - 7D
Maple La(S) - 10D, 3D
Maple Pkwy(S) - 3D
Marlin(S) - 4E
Maryland Av - 3C
McDaniel Dr(S) - 7D
McKee Rd(S) - 2A
Meadow Av(W) - 9A
Mechanics(W) - 9A
Miller Rd(S) - 4DE
Minima - 4C
Minor - 4C
Mitscher Rd(S) - 2, 3D, E
Mitten(S) - 9D
Monroe - 3C
Monroe Ter - 5C
Morris Dr(S) - 5D
Nathaniel Mitchell Rd(S) -
7-8C
New - 4C
New Burton Rd(S) - 6-7B
New Castle Av(S) - 4D
Nile Rd(S) - 7E
Nimble Rd(S) - 3E
Nixon Rd(S) - 3E
North Little Creek Rd(S) -
3D, F
North - 4C
Oak Dr - 6C
Oak La(S) - 7D
Old North Rd(S) - 8-9B
Orchard Av - 5D
Orchard Av(S) - 5D
Park Av - 5D
Park Dr - 4D
Paul - 4B
Peach(W) - 9A
Pear La(W) - 9A
Pear - 2B
Pennsylvania Av - 3C
Pine(W) - 9A
Pine - 5D
Poplar La(S) - 7D
President Dr(S) - 6E
Pryor - 4C
Queen - 4C
Railroad Av - 4C
Railroad Av E(W) - 9A
Railroad Av W(W) - 9A
Reed - 4C
Reese - 4B
Richard Bassett Rd(S) - 7C
Ridgely(S) - 3, 4B-4C
Rising Sun Rd(S) - 9C
River Rd - 4D
River Rd Ext - 5DE
Rodney Rd - 3C
Rodriguez Dr(S) - 7D
Rodriguez Ter(S) - 7D
Roosevelt Av(S) - 6D
Rose - 2, 3C
Rte 8, Del. (S) - 4A, 3F
Rte 13, U. S. (S) - 1C-4D,
10BC
Rte 13, All, U. S. - 3, 6C
Rte 113, U. S. (S) - 1C, 5E,
9C
Rte 113, All, U. S. (S) - 2,
3C, 6D
Sackaracha Av - 5D
Samuel Paynter Dr(S) -
7-8C
Saulsbury Rd(S) - 3B
Saxton Rd(S) - 7D
Senator Av(S) - 8D
Shady Lane Av(S) - 6E
Shank Rd - 5-6C
Sherwood Ct - 5-6C
Short - 4C
Shotgun Al - 4C
Silver Lake Dr(S) - 2C
Slaughter - 4BC
Smith(S) - 3CD
South Blvd(S) - 9A
South Blvd(W) - 9A
South(S) - 9A
South - 5C
South Shore Dr(S) - 8D
Spring Garden La(S) - 3D
Spruance Rd(S) - 3E
Spur(S) - 8CD
Star Hill Rd(S) - 10B
State Cir(S) - 6E
State - 3C, 5D
State St Ext(S) - 6-9D
Steele Rd(S) - 7D
Stewart Ct - 8C
Stevens(S) - 9AB
Sunset Rd(S) - 2C
Sussex Ter - 5C
Sussex Av(S) - 4D
Taylor Dr(S) - 2B
Taylor(S) - 8C
Upland Av(S) - 3D
Vine - 4C
Walker Rd(S) - 3AB
Waples Av - 5C
Washington Pl(S) - 6EF
Washington - 3C
Water - 4C
Water St Ext(S) - 4D
Wayne Dr(S) - 7C
Webb's La(S) - 7B
Westley(C) - 9AB
Westley(S) - 9AB
West - 3C
West(NC) - 9B
West S(C) - 9B
Weston Dr - 4B
Westview Av(S) - 8D
Westview Ter - 5, 6C
Westwood Dr - 6C
White Oak Dr(S) - 2, 3D
William - 3B
Willow Av(C) - 9B
Woodbrook Rd(S) - 7C
Woodburn Cir - 6C
Woodford Dr - 5C
Woods Dr(S) - 7D
Woodridge Rd - 6C
Wyoming Av - 6C

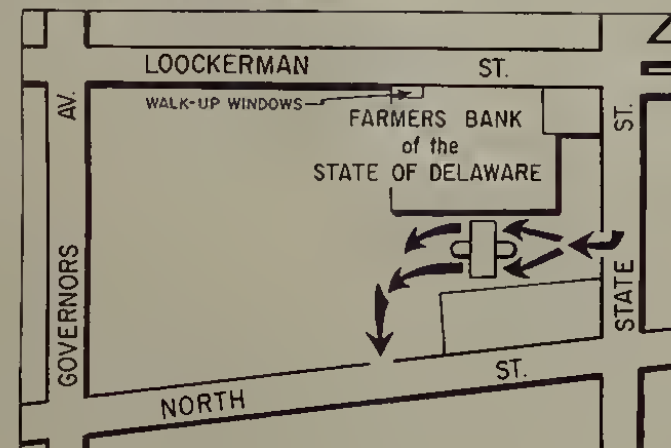
LEGEND BUILT-UP AREA

1740
1868
1939
1954

□ GAS STATION

FARMERS BANK
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DRIVE-IN TELLER WINDOWS AND CUSTOMER PARKING



KENT
ACRES

CAPITOL
PARK

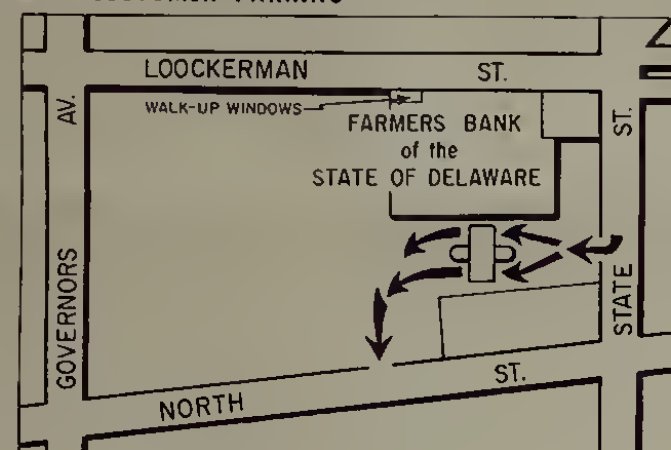
TRAILER
PARK

DOVER A.F.B. HOUSING PROJECT

Base Rd - 9G
Birch - 8F
Buttonwood - 8F
Center Rd - 9F
Circle Dr E - 9, 10G
Circle Dr W - 9, 10F
Cypress - 8
Hawthorne Dr E - 8, 9G
Hawthorne Dr W - 8, 9F
Hemlock - 8F
High - 8, 9F

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DRIVE-IN TELLER WINDOWS
AND CUSTOMER PARKING



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MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

WYOMING

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SCALE IN FEET

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STATE OF DELAWARE
ESTABLISHED 1807
MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

HR 76L19-1335-217 (R377)

**DOVER A.F.B.
HOUSING PROJECT**

Base Rd - 9G
Birch - 8F
Buttonwood - 8F
Center Rd - 9F
Circle Dr E - 9, 10G
Circle Dr W - 9, 10F
Cypress - 8G
Hawthorne Dr E - 8, 9C
Hawthorne Dr W - 8, 9F
Hemlock - 8F
High - 8, 9F
Lebanon Rd - 9F
Myrtle - 9F
Rte 113, U.S. - 9G
Spruce - 8G
Walnut - 8G
Winding Rd - 10F

1st Av - 9F
2nd Av - 9F
3rd Av - 10F
14th - 9G

**COMERCIAL
AREA
DOVER
AIR FORCE
BASE**

**DOVER A.F.B.
HOUSING PROJECT**

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